

THE BEST SELLING MAGAZINE FOR THE

ISSUE 34 • JULY 1989 • £1.75

# AMSTRAD PCW

# 8000 PLUS

8256 • 8512 • 9512

- ACCOUNTING PACKAGES REVIEWED
- SUPERCALC - THE SERIES
- APPROACHES TO PROGRAMMING
- WRITE A BESTSELLER
- NEW DRAUGHTING PACKAGE



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(includes lead)

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PRINTING  
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YEDMANS WAY  
TROWBRIDGE • WILTS

DISTRIBUTION  
SEYMOUR PRESS  
53A BRITTON ROAD  
LONDON • SW9 7AG

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1988

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ABC June - Dec 88 28,00A

# OPENING MENU

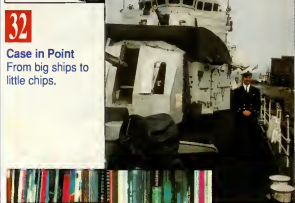
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Want to be a prize-winner? Apply here!



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From big ships to little chips.



**45 The PCW in Control**  
Steve Patient blows its cover.



# Want a computerised address book...

```

M group 0/ADDRESS DAI Locofile. Printer (d/e. Using M:
Index: Surname Unique Col: 4/AS line: 8/15
1=Actions f2=Index f3=Item f4=Print f5=Goto f6=Find f7=Extract f8=Options F11

```

```

record:
First name Surname
Sally Owen
Address
4 Loraine Gardens
Balford
BA4 6TS
Home phone 0923 12397
Work phone 091 133 7885
Widget Company
Industrial Estate
Little Woodhouse
Macclesfield
th January 1989
he new
ner M45 is
our top of the
I am sure that the Supercleaner M45 will bring you the same satisfaction at
home as you obviously get from the Office Valet Deluxe in your work.
Yours sincerely
Joan Smith
Customer Services Manager

```

...THAT YOU CAN SEARCH  
AUTOMATICALLY?

```

Goto:
+
Record with this key
Next record of current index
Previous record of current index
First record of current index
Last record of current index

```

... KEPT IN ORDER  
AUTOMATICALLY?

```

Main key type
Alphabetic
Numeric
Date order
Day/Month/Year
Month/Day/Year
Year/Month/Day
Day/Month
Month/Day

```

...THAT PRODUCES LABELS  
AUTOMATICALLY?

```

Print extract
First name
Surname
Address
Home phone
Work phone
Print
Select all
Select none

```

## THEN YOU NEED LOCOFILE

– the new database for LocoScript 2 on your Amstrad PCW.

# LocoFile

For LocoScript 2  
ON THE PCW8256/8512/9512

LocoFile lets you use your PCW for more than just wordprocessing, and it works inside LocoScript so that you can have access to your data at any time.

With LocoFile you can keep information sorted into order and quickly available. It takes just a couple of keystrokes to copy a name and address from a LocoFile address book and paste them directly into your letter.

(Of course LocoFile can handle much more than just address books.)

LocoFile can print your data too. Print just one card, a complete card index, or just the records you've changed so you can keep your existing card index up to date.

And all this is always available – once you've installed LocoFile onto your Start-of-Day disc you can call it up at any time with just a couple of keystrokes.

Please send me the following:

FOR THE AMSTRAD PCW 8256/8512 Name \_\_\_\_\_

LocoScript 2 & LocoSpell £34.90 ☐  
 LocoScript 2 £24.95 ☐  
 LocoFile £29.95 ☐  
 LocoMail £29.95 ☐  
 LocoSpell £19.95 ☐

Address \_\_\_\_\_

Postcode \_\_\_\_\_

☐ I enclose a cheque for TOTAL £ \_\_\_\_\_

☐ Please charge my Access/Visa card EXP. DATE \_\_\_\_\_

Signed \_\_\_\_\_

Send to Katy Buchan at:

**LOCOMOTIVE SOFTWARE**  
 Allen Court, Dorking,  
 Surrey, RH4 1YL  
 TEL 0306 740606

FOR THE AMSTRAD PCW 9512  
 LocoFile £29.95 ☐ Note: All prices include VAT and UK postage



## FOREWORD

## Hello, Mr Chips!

My eldest son is a fanatic when it comes to anything to do with computers while my youngest is much keener on football, bike riding and outdoor pursuits, I don't worry about either of them and certainly don't push computers onto them.

Computers and education are very much in the news, and often found together in a single phrase. The argument is that unless our children are taught 'computing' they won't be able to get on in the world when they leave school; so what is this 'computing' that they should be taught?

To begin with, the idea was that children should be taught to program, and to this end many hapless infants were exposed to the heady delights of Pascal once a week for twenty minutes on a Thursday, 24 to each BBC micro. Much surprise was evinced when this failed to excite great enthusiasm in either teachers or pupils.

Part of the problem was that there weren't enough computers or teachers to go around. That is changing; for example, in both the school where my wife works and the one my son attends there are now dedicated computer rooms and technicians - but not, note, teachers. This is because there is still no consensus as to what schools should be teaching children about computers.

Clearly the first thing to teach children is basic keyboard skills - typing - which gives them rapid access to everything else. Then teach them how to use word processors, the fundamentals of databases and finally spreadsheets. At this point they can begin to get some work out of one of the basic tools of our society. This is analogous to teaching them to drive so that they can use a car.

If they then show signs of fascination with the underlying principles of computers, perhaps they could then go on to take programming, electronics design or maintenance as alternatives to metalwork or geography. If you want your children to be able to use a car, you don't start off showing them how to strip the carburettor - at least, not if you want to hold their interest.

S. Palmer

## The £25 PCW!

Going! Going! Gone! Yes, we are talking about auctions. Over the last decade as the computer has moved into the home, the computer auction has grown in popularity. Recently, one lucky bidder managed to nab a PCW 8256, complete with original packaging, at a stunning £25.00.

There will always be room at auctions for the first time buyer, and for those on the look out for a specific item, such as a keyboard to replace the one which became an accidental coffee table.

Before going to an auction it is a wise idea to send off for a catalogue. Auctioneers will be more than happy to let you have one but must will stop sending them out about a week before the day.

We talked to one such firm of auctioneers, MCD of Surrey, who have been in business for some years now. They assured us that they cater for the end user rather than the big time dealer. The best way to find out and maybe track down a £25.00 printer is to go to an auction. A few contact numbers are listed below:

MCD Auctioneers: 0276 692-260;  
Traderdesk Computer Brokers:  
0527 73828.



The £25.00 PCW. Sold to the man in the beard.

## Subscription Rate Held

As you will have noticed, the price of 8000 Plus has risen. This is the first price rise for two years, since June 1987 in fact, and results from the increases in production costs over the years.

The good news is that we have managed to retain the old subscription price for a further month. This means that if you're fast you can still pay just £17.50 for a full twelve issues and even get some goodies thrown in too. The order form is on page 85, so subscribe now and save money.

## NEWS

## Unprintable but VAT-able

In last month's news, we noted that VAT was to be imposed on the electronic magazine Micronet which is accessed via a modem and provides computer related news. Micronet it seems, fell foul of a ruling made by the Court of Justice of the European Community which stated, in the words of Mr Peter Lilley MP and Economic Secretary to the Treasury, that, "...the supply of news services to businesses which do not themselves make zero rated supplies could not be regarded as supplies to the final consumers and so should be standard rated."

He went on to say that the ruling would not affect newspapers or periodicals but would hit agencies such as Reuters.

Since then, changes would appear to have been wrought in the already difficult to understand parameters of this ruling. David Rosenbaum, product manager for Micronet, told us this month that he had received a reply to the petition which had been sent to Chancellor Nigel Lawson. This reply came once again from

Mr Lilley. He stated that the VAT rating on Micronet had little to do with end users and more to do with the fact that it is electronic, not printed, media.

This leads to some interesting questions relating to taking books. A loophole might also appear as to whether you can claim VAT back on information downloaded from electronic media to a printer.

Micronet are now taking steps to marshal their forces in order to form a new defence.



## Company Retains Integrity

DGA, producers of Pro-Punter, and Pro-Pools has taken over Coda Software. This deal took place late in May. Both firms will retain their names but will operate from DGA's base in Ashton-Under-Lyme.

This move is seen as a further strengthening of the PCW market. It has been noticeable of late, with the expansion of Database Software's desktop publishing catalogue, for example, that certain firms are backing the PCW. We can only applaud their market acumen.

An updated Pro-Punter is due for release in September. Changes will include speedier data input for the keyboard weary user and information on overseas courses.



## Dingbyte

Can you spot the computer (related....just) word or phrase associated with this dingbyte? No prizes; the answer's on page 8.



# THE WEST OF BRITAIN BUSINESS SERVICES

## Remember Our Prices Include V.A.T. & Carriage!

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PCW255 £374.95  
PCW512 £469.95  
PCW515 £515.00

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Call For Low Prices For:  
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Sample Prices: Executive 8810  
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Send for our FREE catalogue  
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Executive 28612 - Network Master  
12.5MB/240K RAM/Amstrad Monitor/20MB Hard Disc - Diskette/101 Key Keyboard (EGA Card as standard) £178.75  
As above but 4MB & EGA! £137.65

### \*\*\* Link Your PCW To A PC \*\*\*

If you wish to run your accounts on a PC but use your trusty PCW as a very cost effective workstation (and as a station for your PC) send for details of Compact Accounts PCPCP system!

### SCHNEIDER - (IBM Compatible)

The full range is available, from W.B.S. at very competitive prices

Portable PCs -  
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Printers come in all shapes and sizes to suit the job you have in mind, or your pocket! We can supply 9 to 24 pin and daisywheel through to lasers - Citizen (With their 2 Year Guarantee), Amstrad including the LS3050 & LS6050, Panasonic, Hewlett Packard, and More!

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PCW800's Wire Printer Stand - £10.50

Data Switches - 2 + 1 - £39.95  
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3" Disc Head Cleaner - £9.95  
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Mouse Mats - £4.99

### MODEMS

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For The PCW & Connecting Lead - £179.95

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Disrup - Communications Software - £37.75

#### \*\*\*\*\* BBID TUST COVER SET \*\*\*\*\*

PCW8256/8512 - £119.95  
PCW512 - £135.95  
PC1640/1512 state col of mono - £9.00

Amstrad PCP - £50.00  
Pace Disc Drive Cover - £57.75  
Please State Model When Ordering

#### \*\*\*\*\* DISCS \*\*\*\*\*

If you are not CERTAIN as to what your requirements are please phone.

#### \*\*\*\*\* DISCS \*\*\*\*\*

CF2 3" for the PCW/PCP x 10 - P.O.A.  
CF2 3" for the PCW/PCP x 5 - P.O.A.  
3" 5.25" Alpha DS/DD Discs x 10 - £15.95

5.25" Xides DS/DD Discs x 10 - £7.49  
5.25" Xides DS/DD Discs x 5 - £15.99  
5.25" Xides DS/DD Discs x 50 - £29.49

5.25" Xides DS/DD Discs x 100 - £54.95  
5.25" 3M DS/DD Discs x 10 - £11.25  
5.25" 3M DS/DD Discs x 50 - £49.75

#### \*\*\*\*\* DISC STORAGE \*\*\*\*\*

DS10 CF2 3" (Holds 10) - £6.25  
DS40L 3" 7.5" Lockable - £9.75  
DS100 3" 7.5" Lockable - £11.75

CT3070 3" 7.5" (Holds 70) Lockable - £3.75  
DS100L 5.25" (Holds 100) Lockable - £11.75

#### \*\*\*\*\* PRINTER RIBBONS \*\*\*\*\*

REFRESH - Black Re-inking Spray - £8.95  
Extends fabric ribbon life - will re-ink up to 30 ribbons!!

#### \*\*\*\*\* Excellent Value Composites \*\*\*\*\*

PCW 8256 Fabric (1400 characters) x 2 - £7.49  
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PCW 512 Carbon Multisheet x 2 - £5.99  
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#### \*\*\*\*\* AMSTRAD BRANDED \*\*\*\*\*

PCW8256 Fabric x 2 - £14.99  
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Any Two - £10.75  
Any Five - £26.75  
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#### \*\*\*\*\* Many Other Ribbon Types Available \*\*\*\*\*

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11" x 9" Continuous -  
SP 05 1 ply plain - 500 sheets - £7.95  
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SP 20 1 ply plain - 2000 sheets - £18.95  
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SP 10 2 ply plain - 1000 sheets - £28.95

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1 ply plain - 1000 sheets - £13.95  
1000 x Plain white/micro perf - £22.95

500 x Plain white/micro perf - £12.95  
500 x Plain white/micro perf - £19.95  
2000 x Plain white/micro perf - £30.95

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500 x Plain white/micro perf - £12.95  
500 x Plain white/micro perf - £19.95

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Plain white - 500 sheets - £7.95  
Plain white - 1000 sheets - £14.95

White - With Spotted Hole -  
One Wide 9 1/2" x 1 7/16" - 500 - £6.95  
One Wide 9 1/2" x 1 7/16" - 1000 - £11.95

One Wide 9 1/2" x 1 7/16" - 2000 - £21.95  
One Wide 9 1/2" x 1 7/16" - 4000 - £39.95

We strive hard to be the friendliest and most helpful place around with low prices and fast despatch with after-sales support that will bring you back for more - we hope!

### SOFTWARE

The New Mini Office Professional Plus (r.p.p. £499.95) W.B.S. Price £344.5

WORDPROCESSORS  
Protext - Full System Wordprocessor / Spellchecker / Mailmerge - £39.75  
Pocket Flier (needs Protext) - £21.75  
Protext Office (needs Protext) - £27.95  
Pocket Protext: Wordpro. Only - £27.95

#### \*\*\*\*\* Swallowtail Software Presents - PCPCASE \*\*\*\*\*

A complete set of business utility programs for the serious user of Protext who does not have the time to get the best out of the Program themselves. Comprises invoicing, ordering, settlement of suppliers invoices and many other useful documents (further details upon request) only - £14.95

#### \*\*\*\*\* WORTH GETTING PROTEXT FOR? \*\*\*\*\*

Locofile - links with Loco II - £27.75  
Locoscript - Locoscript II & Spell - £29.75  
Locoscript II - New Version - £21.75  
Locomail II - £25.95  
Locofiles - £17.75  
Locofont II - £13.75  
Data E Type - £27.75  
M.A.S.S. Easy Labeler - £28.75  
Database Spellchecker/Thesaurus - £22.75

#### \*\*\*\*\* SPREADSHEETS \*\*\*\*\*

Supercalc II - P.O.A.  
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Rotate - Sidesways Printing! - £21.75

#### \*\*\*\*\* DATABASES \*\*\*\*\*

Corink Card Index - Simple To Use - £29.75  
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Camsoft Cambase v1 - £35.95  
Camsoft Cambase v2 - £42.75  
Database Manager At Last Plus - £29.75  
DBase II new release! - £29.75

If you are unsure exactly which package you need for your particular business, please phone and we will describe the strengths & weaknesses of the various packages in clear jargonless terms - but leave you to decide.

#### \*\*\*\*\* ACCOUNTS \*\*\*\*\*

Money Manager Plus - £29.75  
Mendian Stockmarket - £34.75

#### \*\*\*\*\* CORNIX \*\*\*\*\*

Simple Accounts II - PCW - £94.95  
New, very powerful & easy to use system.  
Simple Accounts Plus - £44.95  
Job Estimating - New version - £74.95  
Product Costing - New version - £74.95  
Full Details On Application

#### \*\*\*\*\* MICRO SIMPLEX \*\*\*\*\*

VAT Made Simple - A/Cs System - £115.00  
Micro Pro Book - £115.00  
Video Tape Demo Available

#### \*\*\*\*\* COMPACT ACCOUNTS - Unbeatable! \*\*\*\*\*

Accounts - £159.75  
Accounts Plus - £169.75  
Daybook - £77.95  
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GOVT DEPTS / LOCAL & EDUCATIONAL AUTHORITY ORDERS WELCOME.

## Sugar and Branson in Court Battle

Terry Wogan, John Lloyd, Lenny Henry and Frank Bruno will be using their muscles in order to help those people unable to use their own. It's tennis we're talking and the event in question will take place at the Royal Albert Hall on the evening of June 23rd. The tournament, now in its seventh year, will begin at 6.45 pm and

and Melvyn Bragg. The highlight of the evening, however, will be a doubles match with Alan Sugar on one side and Richard Branson on the other. No one knows who the brave umpire will be.

Richard Attenborough, the chairman of the Muscular Dystrophy Group will be another of the stars on show that night along with professional players such as Amritraj, Kriek and Gottfried.

The evening is expected to raise £150,000 to combat Muscular Dystrophy. Tickets for this more than worthy bash are available from the Royal Albert Hall and range in price from £7.00 to £16.00. The ticket office is on 01 589-8212.

## Fair Old Wac

Can you make money from your PCW? David and Deirdre Hambly have. Good business ideas are often so simple that they seem silly. This is what David and Deirdre first thought when Deirdre came up with the notion of ready printed cards - the kind you display in shop windows.

After some more thought they decided to go ahead with the plan. Thus emerged WACs or Window Advertising Cards.

The initial idea was to have



Just two of the cards available from Dear Sirs.

plain white postcards with colour coded borders to designate what type of article or service the card offered (or required). From these initial plans came the fully fledged WAC, postcards with a coloured image lightly printed onto them. The cards were produced using Stop Press and coloured ribbons on their very own PCW. The idea is for you to write or type your message over the top of the image which in its turn will call out from the noticeboard.

David, a talkative semi-professional magician has appeared on television and stage on numerous occasions. He and

Deirdre have set up a company called Dear Sirs. They provide desktop publishing and word processing services. The company has ambitious plans for growth with many new ideas "in the pipeline".

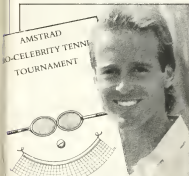
Dear Sirs will produce customised cards for businesses, clubs and other ventures. Their basic sales point is that there are "No Limitations" to the cards and adverts which they will produce.

WACs can be bought in packs (called WACpacs, naturally) of different designs and colours and we hear they're going down a storm with newsgasters. Dear Sirs can be contacted for prices and estimates on (01) 390-2230.

## Appeal of the Heart

Last month we told you about the Oxfam software appeal. Oxfam, Britain's largest aid agency, had noticed the vast amount of games software which comes onto the market every week. Oxfam have requested that any unwanted software, or computer related goods, be donated to them. They will then sell the various articles through selected London branches.

So far the response has been good with contributions coming in from the computer industry and the general



continues until midnight.

Amstrad are sponsoring the 1989 Pro-Celebrity Tennis Tournament in aid of the Muscular Dystrophy Group. MD is a genetic disease resulting in the wasting of muscle fibres.

Other celebrities attending will be Kevin Keegan, Jimmy Tarbuck,

# CLUB

# NEWS

Club News is a section of the magazine which relies totally on feedback from our readership. Club News is easy to join. All you need is membership of an organisation which makes use of a PCW. If you actually run a club dedicated to everyone's favourite machine all the better! We will be pleased to receive and print any news you might have, meeting dates, guest speakers, in fact

anything which you think might be of interest to other PCW users. Remember, don't leave it to someone else to send in news about your club because they most probably won't.....make sure you get there first!

Send all Club News to: Club News, 8000 Plus, 4 Queen Street, Bath, BA1 1EJ.

## Standing Room Only

Ken Ritchie, from the Middlesex PCW Computer User Group, tells us that their next meeting will be July 17th. There is no fee for the first meeting so why not go along? Ken can be contacted by SAE at: 5 Rib Vale, Hertford, SG14 3LE.



The Middlesex PCW User Group discuss building an extension to accommodate the new members.

## Armchair Clubbing

The CP/M Users' Group (UK) lives on. Happily, plans to wind up the group because of work strain have been shelved. The last annual general meeting elected an 'upgraded' committee, with much new blood and with it has developed a greater sense of commitment to the success of the club.

The group is a non-profit making organisation with contacts all over the world. It makes good use of these to hold one of the most comprehensive public domain libraries available to PCW users, who make up a good percentage of its membership.

As the group is spread so widely around the UK (not to mention the rest of the globe) most interaction occurs via the group's bulletin board. A magazine is also published sporadically and has

been known to run to 200 pages. The revamped committee are always on the look-out for contributions to this journal which will be of interest to anyone who has been in close proximity to the PCW or, in fact any of the many CP/M machines still alive and kicking.

Membership costs £11.50 for a UK resident and includes access to the lively bulletin board. For more information, contact Diana Fordred at: 72 Mill Lane, Hawley, Dartford, Kent, DA2 7RZ.

## Tie A Yellow Ribbon

Nick Godwin, a seasoned campaigner with computer-related broadsheets and clubs, is setting up a new venture; another obvious idea but a good one. The new club will be for computer printer users.

The club is to be provisionally entitled Write-On-Line and Nick is open to participation. He can be contacted on (08907) 509-65.



public. The target figure of £20,000 has not yet been reached. With your help it will be. So donate today!

If you want to buy any of this (funds going to Africa, South America and Asia) you should make your way to the following shops, all of which are in London, from the 26th June:

432 Kings Rd, Chelsea  
23 Drury Lane, Covent Garden  
202b Kensington High Street  
15 Warwick Way, Pimlico  
87 High St, Hammersmith  
570 Kingsland Road, Dalston  
82 South Street, Romford,  
Essex  
1, the Green, Ealing  
148 High Street, Beckenham

A few of these shops will be giving away a free computer book with a raffle ticket if you spend over £5.00. The raffle prizes are donated computers.



"... COMES COMPLETE WITH BUILT TO THROW THE FINISHED LETTER IN"

## Hush, Hush Whisper Who Dares...

There are other types of printer for the PCW aside from the dot matrix and the daisy wheel which comes with the PCW9512. Kodak offer two fairly cheap ink jet printers which tend to be quieter as only the ink hits the page, at very high speed. These are the Diconix 300 and 300W which retail at £499 and £599 respectively (Kodak don't mention VAT). Noise level is rated at around 45 decibels; there are draft, near letter quality and 'quality' modes and Kodak claim that the printers will produce 310 characters per second. More importantly for 8000 Plus readers, both printers are Epson-compatible which means that they will run with the PCW.

Phone Kodak on (0442) 61122.



Quick and quiet; what more could you want from the Diconix 300W from Kodak?

## You Hold the Front Page

The best news is the news we hear from you. If you have information which you think will affect other PCW users why not send it into News Plus? We want to hear about companies, ideas, and most of all about people. In fact about anything other people might need to know or might find interesting. You tell us and we will tell the world. Send your news to: News Plus, 8000 Plus, 4 Queen Street, Bath, BA1 1EJ.

## Chain Gangs Rampage

In last month's Club News we asked for letters about get-rich-quick chain letter schemes. There was a strong response.

One reader from Bournemouth relates his experiences with a firm called Home Based Business. Some time ago he sent off for their free information leaflet which contained "...a lot of tantalizing rhetoric...". He was wooed by this and sent £12.50 for the "great business ideas promised". He received a group of articles explaining how to set up chain letters!

He was sent another tempting letter which, in his words, offered new ways to make "Loadsamoney". This time he was invited to send around £20.

It's obviously a bad idea to take part in such schemes; they have no regulatory bodies and no code of ethics. The bottom line is that they can only flourish if people are taken in by them.

To cap it all; another reader, this time from the West Midlands, sent us a leaflet which confused us for a while. It came with no covering letter (but with a *Tip Off*, thanks - Ed) and informed us that we could vastly increase our income if we spent £7.00 on advertising ideas. We phoned to find out why he had been sent the leaflet and were informed that he was trying to sell the good news to us!

He mentioned a Mr McGovern who was his contact at Home Based Business but who - strangely - had no phone number. We would be pleased to hear from Mr McGovern. As ever, more news on chain letters is greatly appreciated.

## Write to Reply

The original impetus for the entire Chain Letter debate - not much of a debate really as no one has written to defend the practice - began with news that membership lists for the defunct PCW File user club were being misused by the fact that they had mysteriously become mailing lists.

Chris Bryant, who was one of the leading lights in PCW File has been in contact with us over the matter. In his letter he raised two main points:

firstly, having been assailed by chain letters himself, he would like to offer his apologies to any club members who have been similarly pestered. Secondly, he reminds us that there are still back issues of the PCW File journal to be bought costing £6.00 for five issues or £10.00 for eight.

These are of general interest to PCW users but there is another

reason to spend a few bob, proceeds go towards paying off the £100 or so debts incurred by the club in its lifetime.

Chris Bryant may be contacted at his home address which is: 11 Havenview Road, Seaton, Devon, EX12 2PF.



Yes. Please rush me a CH/PO for £7.00

Loadsagarbage!

Answer to dingbyte: Desert Island Disc.

## SNIPPETS

### Beware!

If you are thinking about buying a second PCW, or even a first one, make sure that you get everything you asked for. Certain shops, the names of which we will not be mentioning (HTE Tec in London), will try to flog you a PCW8256 or 8512...without the printer!

### Right Spare Part

Have you been waiting months for spares for a sick PCW? Been told that the spares problem will be cleared up shortly? A number of our readers have, so we tried to contact Mr Angel at Amstrad's The spares-are-coming-really section. It looks like the pad on which messages are left has developed a bug as our calls haven't been returned. Snippets will follow up!

### Thurston for More

Brian Thurston of Thurston Techniques is not content to provide the prizes for this month's competition (see the back page), he has also added a perpetual diary to his discs 8.2 and 9. Aside from this we must remember to call his word disc a Thesaurus which is what it actually is - but you knew that already.

### Battleship Potemkin

Istebain have had a few problems supplying their 512k ram memory upgrade. These, they tell us, have been caused by their suppliers. They have an awful lot of cheques and credit card orders but they have cashed not a single one.

We hope to review the hardware soon, along with a new 20 megabyte hard disc which is rumoured to exist.

### Change of Life

Transprint of Bath, the people who will take your LocoScript files and typeset them like pros have moved: phone (0225) 446259.

### Wrong Number

Sigma Press were mentioned in last month's news with the wrong phone number. You can actually get in contact with them on (0625) 536-800

### Corrupted Database

The update to Mini Office is still not available; we've tried and we know. But we've now received a letter which seems to indicate that Database have been debiting Visa accounts with promises of product availability as long ago as May 4th. Can this be right?

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## **WIDE PRINTED STARS**

Designed specifically for your Amstrad PCW printer, provides space for up to 500 sheets of continuous paper, keyboard storage or other items



PCW8256/8512 Wire Printer Stand ..... £8.65



PCW9512 Wire Printer Stand ..... £14.95

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 PCW8256 Fabric Black ..... £3.39  
 PCW8256 Carbon Black ..... £3.34  
 PCW9512 Fabric Black ..... £3.15

## **ORIGINAL RIBBONS**

PCW9512 Carbon Black ..... £4.80  
 PCW8256/8512/LQ3500 Fabric Black ..... £5.21  
 PCW8256/8512/LQ3500 Carbon Black ..... £6.08  
 DMP2000/3000 Fabric Black ..... £5.21  
 Coloured Fabric Ribbons available for PCW8256/8512/9512

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PCW8256/8512  
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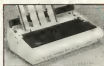
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 Optional Stand for 80 column Hood provides storage for paper.



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# ACCOUNTING

Slippery stuff money, it can be hard to keep track of – Andrew Bibby examines

Why keep business accounts? Well yes, of course, to avoid a rap on the knuckles from the tax or VAT inspector. But that's not the main reason. You need to keep accounts so that you know how your business is doing. The information within the account books is an essential tool in the management of your business, and without it you won't know whether you're coming or going – coming into money, or going down the plug.

The problem is that, while most small businesses keep accounts of some sort, too often they view them simply as rows of rather meaningless numbers. The act of book-keeping is a ritual, detached from the 'real' work of running the business, and undertaken with reluctance on wet Friday afternoons or perhaps delegated to a part-timer or junior member of staff.

Wrong! Book-keeping is central to any business. If the information you need on which to base business decisions is not leaping straight off the pages of your account books, then there's something wrong with your accounting systems, no matter how tidy the books may look. Perhaps you're trying to get by with an accounting system which is too simple for your needs; more likely, you've saddled yourself with a system which is much too complex for your size of business.

It's perhaps as well to make this point before we go any

further. It's true that the PCW, versatile as ever, will run an enormous number of business accounting packages, ranging from the relatively straightforward to full-blooded professional packages like the one from Compact, which supply eleven sides of discs for their £195.99 asking price. A lot of ingenuity has gone into many of these programs, and if you buy them for your business your accountant is likely to be a happy person.

The problem is that you may not be quite so satisfied. A year or two back I was asked by a group of people beginning a new business to recommend an accounts package for their 8512 which they had bought primarily for word-processing and mail order work; at that time my advice was simple: forget about the Amstrad, and buy a simple analysis account book from the local stationers (Collins' range of Cathedral books is a good bet). Devise, in conjunction with an accountant, a simple cash book system – and promise to keep it up to date.

## Simple is beautiful

A small business can get by perfectly adequately for a time, I said, just with a comprehensive cash book (the record of transactions into and out of the bank account), and – if it can't be avoided – a petty cash book as well. Sales and purchases records can be introduced later, as the business grows. And double entry book-keeping can come later, too, when you're ready for a challenge. Beginning in this way

Name	Micro Simplex	MAP Accounts	Small Business Accounts	Compact Accounts
Software Company	Micro Retailer Systems Ltd (0625 615375)	MAP Computing (061 624 5662)	New Star Total Office Software Ltd (0245 265017)	Compact Software Ltd (0703 611214)
Price	£125 + VAT	£125 + VAT	£69.95 incl VAT	£149 + VAT
Discs	3 sides for 8256, 1 for 8512/9512	4 sides (2 discs)	1	Purchase, sales and nominal ledgers are on separate discs with demonstration disc, so up to 11 discs are supplied
8256/8512/9512	Much disc-changing with 8256	Yes	Yes	Not realistic for a single user
Evaluation (pre-purchase)	Video available for borrowing free of charge. Evaluation disc (complete program plus manual, allowing 3 weeks' entries) for £20 + VAT	No special arrangements	No special facilities	Evaluation disc, with facilities for limited use available free of charge
Tutorial/manual	Just the manual	Disc and full manual supplied	Short manual supplied	Comes with demo tutorial booklet
Back-up/updates	One month's support free. User club (£50 + VAT) gives one year's support	30 days' free support, thereafter charged. Reduced PC upgrade possible	45 days' phone support free, thereafter £30 + VAT pa	Free 90 day phone support, thereafter £95 + VAT pa
VAT	Yes	Yes	Yes	Yes
Sales/purchase ledgers	No	Yes	No	Yes
Statements	No	Yes, preprinted stationery (£53.50 + VAT for 2000)	No	Yes, continuous stationery for statements is available
Invoicing	No	Yes, 2-part preprinted invoices £49 + VAT per 1000	No	Yes
P & L accounts	Yes, in rudimentary form	Yes	Yes	Yes
Balance sheet	No	Yes	Yes	Yes
Comments	Primarily for small retailers	Comprehensive accounts package including stock control	Essentially a cash book based system	Very complex package, well beyond the PCW's range



# ING FOR IT

examines the software that shows you exactly what your money's doing

with a manual book-keeping system, you stand a sporting chance of understanding what you're doing, and more importantly why you're doing it. And, if you do decide in due course to computerise your accounts, then you can continue with the manual system in parallel for the first few months, which can be an invaluable safeguard against unexpected disasters, like accidentally reformatting your data discs before you've got round to making copies.

But having said this, it's only fair to acknowledge that, in many ways, computers are an ideal tool in accounting. It's not just that, with the right software, your PCW will effortlessly tot up long rows of figures which might have you struggling with a calculator for hours.

More importantly, computerised accounts packages can provide an interlocking network of financial records which will be automatically updated for every transaction that takes place – so that, for example, when one of your customers sends you a cheque in payment for an invoice, both your bank account and your sales records will be revised. Some software packages will also revise your overall balance sheet at the same time.

## Double dividend

Computer accounts packages are, almost without exception, based on double entry book-keeping principles. Double entry is a wonderfully holistic approach to accounting which proceeds on the basis that every activity

## Living dangerously

Close behind crocodile wrestling and skiing down Everest in the league table of kamikaze activities comes using a computer accounts package without making backup copies.

Backups are essential, and one of the best techniques is to use three discs on a rotating basis (this is what is sometimes quaintly called the grandparent/parent/child system). At the end of a day's work (say, with disc A), copy the information on to disc B, and make B the disc you use the next time you operate the program. When that day's work is over, copy the data from disc B to C, and use disc C next time. Finally copy back from C to A at the conclusion of the following day's work, and start the whole process again. Using this system means that all the discs experience approximately the same wear and tear.

calls forth another which is equal and opposite (buy a £5 box of Mars Bars to resell and you will be adding £5 to your stock account, but taking an identical amount away from your cash account). Nevertheless double entry can be a devil to operate in practice. Your computer will take care of the difficulties, and provide you with an easy-to-audit and comprehensive set of accounts.

A well-chosen computerised accounts system will also provide you with useful management information much more easily than a paper based system can.

Worried about your credit control, for example? At a glance, you'll be able to see how quickly or slowly your creditors are paying you – and how much in total your debtors owe. Or concerned about getting

## Negotiations

Whether you are just starting out in business or you are an established company thinking of changing to a computerised accounting system it is extremely important to take your accountant along with you. It will prove much cheaper to get his help and advice at the beginning than to have him try and sort out the mess if everything goes wrong.

In all matters to do with money – making it, tracking it and keeping it – your accountant should be your best friend.

Simple Accounts	Sage Popular Accounts	Business Controller	Camssoft Integrated Accounts
Comix Software (0462 682989)	SageSoft (091 213 1555)	Digit International (0395 270273)	Cambrian Software Works Ltd (0766 831878)
£99.95 incl VAT	£87 + VAT, Invoice pack £61 + VAT, Combined pack £139 + VAT	£69.95 incl VAT	Integrated package £149.95 incl VAT, Separately, £49.95 incl VAT each
1	Accounts and invoicing packages are on separate discs	2 sides of a single- sided disc	1
Some disc swapping on 8256	Yes	Yes	Yes
Full spec document comes free. Evaluation disc (full program, with restricted file space, plus manual) available for £17.25 + VAT	Evaluation disc (program without manual) available free of charge	Non-interactive evaluation disc £2.95 + VAT, refundable	No specific arrangements
Well-written manual	Audio tape, rolling demo disc	Manual for beginners and more advanced users	Manual is detailed but off-putting
Indefinite free phone support, (extra cover available at £48 + VAT pa including software discounts)	90 days' free phone support, there- after £45 + VAT pa (Pop Acc) or £70 + VAT (Pop Accounts +)	60 days' free support. Thereafter a charge may be made	90 days' free support, thereafter up to £99.95 incl VAT pa
Yes, very comprehensive	Yes	Yes	Yes
Yes	Yes	Very limited facility	Yes
Pages of ledgers can be used at a pinch	Yes, £32 + VAT per 1000 for continuous stationery	No	Designed to print on preprinted paper available elsewhere
No	Add-on program available (see above). Stationery available	No	Designed to print on preprinted paper available elsewhere
No	Yes	Yes	Possible, if nominal ledger set up
No	Yes	Yes	As P & L accounts
Excellent simple package	Complex, but competitively priced	Now one of the cheapest packages around	Not the easiest package for small business people to face

your costings right? Your accounts will be able to show you the total expenditure you've incurred in a division of your business, or on a particular contract.

Larger businesses would be unable to operate without computerised accounting. Whether your business would be well-advised to follow them is something for you to decide -

## Profit and loss

The difference between the sales you make and the cost of those sales is your profit - which is not the same thing as cash income less expenditure.

A sale, for example, is legally made when an invoice is raised: but the money for this transaction may not arrive until weeks or months later. Because profit is calculated on sales and purchases made, it's possible for a business to be trading profitably, but still be forced to close down, through the pressures of a cash-flow crisis.

Suppose, for example that Derek Trotter and his brother Rodney meet you one day in the pub, and offer you a box of best garden gnomes: £10 no questions asked. You pay up, knowing that your next door neighbour will happily pay you £30 for them. A simple business proposition: mark-up of 200%, profit of £20.

You duly make the sale. But your neighbour doesn't have the money to hand, and scribbles a little IOU on a piece of paper. Six months later you're still awaiting the money. However your gnome retailing business has made £20 profit, even though in cash terms you are out of pocket.

but if you do take the plunge, make sure that the software you choose really is the right one for you.

### Plus this plus that

Most of these accounts packages can be used with various add-ons such as invoicing and payroll modules. The basic accounting package is generally designed to do just that and any extra facilities you decide that you need are easily added at a later date.

Doing it this way helps keep the cost down as well as reducing the amount of knowledge you need to absorb to get the system working in the beginning.

## SIMPLE ACCOUNTS II

£99.95 incl VAT • Cornix Software • 0462 682999

"You need only to be able to distinguish between a sale and a purchase to be able to operate the system successfully", says the introduction to Cornix's Simple Accounts II manual.

This is almost true. It's fair to say that you also need to be aware that 'sales' and 'purchases' will not necessarily be the same thing as income received and expenditure made: the distinction (see box) is at the heart of the Cornix system.

Nevertheless, Cornix have set out to create an accounts package which is simple to understand and which avoids accountancy terminology, and in general they have succeeded well. Care has obviously been taken both in the construction of the program and in producing the helpfully succinct manual.

When using any computerised accounts package, there are two main activities which you engage in: entering information when something happens in your business, and examining the resulting figures, to see what they can tell you about how you're doing. Cornix conveniently offer these functions as the two main choices of their opening menu (the two other options are used only when setting up or revising your classification system, and when the end of an accounting period is reached).

Let's consider the 'Entries' sub-menu first. Cornix distinguishes between sales/purchases, which are recorded as new information (the Make Entries option), and the actual transfer of cash on these transactions, which is merely the occasion to revise the existing entries by cancelling the previous 'unpaid' tag attached to them (Allocate Payments option).

In other words, you make a new entry if you raise an invoice, receive an invoice from a supplier, make a cash sale, pay the wages or perhaps notice from your bank statement that bank charges have been deducted. As in an ordinary manual cash book, you can analyse these items by allocating them to particular categories, distinguishing say between purchases of goods for resale, wages, maintenance costs, travel expenses, advertising, and so on. Cornix allow up to 40 categories each for sales and purchases, far more than is possible in a manual system (and far more than you'd use in practice, if you wanted to make sense of your accounts records).

## Business reports

When you clear your outstanding invoices, or receive payments for goods you've sold on credit, however, you must be careful to choose the 'Allocate Payments' option, rather than making a new entry and in effect double-counting a single transaction. Helpfully, the program will print a simple remittance advice to send with your cheques when paying bills.

Finally, if you are simply transferring funds between accounts - out of your bank account and into petty cash, let's say - a third 'Transfer Funds' option is available.

The information entered in this way is processed by Simple Accounts II to produce a series of records which you can call up using the 'Reports' option at the opening menu. Information is displayed either on screen, using a simple scrolling arrangement, or on continuous stationery on the printer.

For example, you can inspect the totals for sales and purchases made, summed according to the analysis categories you have chosen. You can list in detail each separate transaction for each selected category. You can use a search facility to produce a list, say, of all purchases from a particular company - and a useful cross-referencing function also allows you to draw together all expenses incurred on an individual contract, allowing easy invoicing.

You can call up records for each credit supplier or customer (in effect, the equivalent of a page in a sales or purchases ledger), and at a pinch use the print-out of the sales records of particular customers as statements.

And finally, you can get all the information necessary for your VAT return. Cornix also include an option for those smaller businesses which have taken up the recent concession allowing them to pay VAT on a cash accounting basis.

Cornix's Simple Accounts II is a well-designed piece of software which could be invaluable for the smaller business. As well as the manual, Cornix also produce a 20-page specification booklet (in effect, a digest of the manual) which they will send free to potential customers. An evaluation disc - the complete program, but with limited space for information - can also be bought for £17.25 (refundable if you go ahead and buy the program).

On the other hand, Cornix's software is accurately named: what you are getting is indeed a simple accounts package. There's no possibility, for example, of extending the program to handle invoicing functions, or using it to draw up profit and loss accounts or balance sheets. And Cornix's asking price - just under £100 - puts it directly into competition with much more elaborate software packages.

## SAGE POPULAR ACCOUNTS

£87 + VAT • SageSoft • 091 2131555

SageSoft's Popular Accounts package costs almost exactly the same as Cornix's, but there the comparison ends.

SageSoft have produced a highly complex piece of software which may provide just the detail your business accounts require - or which may merely tangle you up in a chaotic accountancy mess.

I admit to having problems in reviewing this package for 8000 Plus. It seems to me that Popular Accounts will probably only be a sensible purchase for the larger small business, not for the very small venture or for the new business undertaking. That being so, I wonder why any business seriously considering it wouldn't also be equipped with IBM PC compatibles, or something other than the faithful PCW. Using Popular Accounting on a PCW is rather like buying a mini van, and then using it to run a house removal business - perfectly possible, no doubt, but not quite what it was designed for.

You'll have to do some groundwork before you start to

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set the system up for your own company, say Sage, and they're right. Like creating a new database this is tedious work, and unless you're clear what you're trying to do, it's easy to get confused. Sage's tutorial manual, which simulates the setting-up of the system in what they claim is a four-hour training session, could be more helpful here: my feeling is that it will leave most people bored and bewildered. The tutorial comes with a rolling on-screen demonstration of the software, and is pitched at a very basic level.

## Popularity waning

Popular Accounts operates three main accounts records—the sales and purchase ledgers, and the 'nominal ledger' (the general record of everything happening financially in your business, from which your profit and loss account and balance sheet can be extracted). Before you can start using the program, you have to structure these accounts exactly as you want them, which means for example entering full details of all your customers and suppliers, details of invoices outstanding, and of your current financial situation. Irritatingly, the program is slow to respond to keyboard input and doesn't store keystrokes, so that a customer called 'Splice' might appear on screen as 'lice', or 'Parsonage' as 'arsonage'!

You also have to establish codes for your nominal ledger records, so that when Popular Accounts 'posts' details of sales and purchase transactions automatically to the nominal ledger, it records them in the appropriate place.

Having got your system up and running, Popular Accounts can be used to extract useful management information. Full details of creditors and debtors is available, including a breakdown of the age of debts outstanding. Statements for mailing to debtors can be printed out, and Sage provide specially printed continuous stationery for this purpose; address labels for the envelopes can also be printed out by the program.

From the nominal ledger you can extract full VAT information, bank reconciliation details, and monthly and year-to-date accounts, including comparisons between the budgeted profit and loss account and the actual trading record. It's also possible to integrate your accounts with the invoicing and stock recording package from SageSoft (Popular Invoicing costs £69.99 as a stand-alone package, or comes as an integral part of Popular Accounts Plus at £149.99). However, bear in mind that you will need the second, high capacity disc drive if you want to opt for the integrated accounts package.

## MICRO SIMPLEX

£125 ● Micro Retailer Systems Ltd ●  
0625 615375

If you've never heard of the Simplex account books, you've obviously never been a small retailer struggling to make order out of a pile of receipts, cheque book stubs, and the day's cash takings. The Simplex D and VAT account books have acquired an almost legendary reputation in circles like these as a no-frills method of keeping on top of the daily book-keeping.

Looking nowadays like a relic from a previous age of accountancy, the Simplex books do nonetheless encourage sound record-keeping, and they do this by operating on the basis of a page for each week's business, and by providing on each page boxes to be filled in for each day's income and spending.

Micro Simplex is an attempt to transfer these principles to the computer. Although Simplex say that the package is appropriate for any small business, in reality it is designed very much with a retail trader in mind, and especially one who is dealing with cash sales.

The weekly accounting period remains at the heart of the program, and anyone contemplating buying the package needs to be aware of what this means in practice. As the

manual itself points out, "Most of the information is printed out each week and only summary information is archived on your disc. For this reason you must save all of the weekly printouts that have to be printed before you roll over from week to week."

Ending each week's accounts is a time- and paper-consuming business, in other words, and is not helped by the fact that you have to exit the program and reboot as you 'roll over' into a following week.

## Help

A similar 'purge' (their word, not mine) of data takes place each quarter, when the time comes for the VAT accounts to be prepared. Incidentally, the paper print-out of records is needed not just for your own use, but also for audit and legal purposes.

Micro Simplex is very strong on the various different VAT schemes for retailers operated by the Customs and Excise, and it seems to me that there is an implicit assumption that most people buying the program will be

## Two heads are better than one

Can you use an accounts package on an unmodified PCW8256? Well, yes and no. Two of the three packages reviewed in this article were run on an 8256, and most of the other accounts packages can be operated on 8256s too.

But it isn't always effortless. Your accounts data is held on a separate disc from the software program disc, and that means there's a great deal of disc-swapping involved, particularly when you switch between different elements of the account package.

If you have a single-drive 8256 and find copying discs with DISCKIT difficult enough then you'll probably be well advised to upgrade if you really want an accounts package. Your reviewer managed to crash one of the programs (all right, it was SageSoft's) by inserting the wrong disc when disc-changing.

I had a good laugh, rebooted from the A> prompt, and carried on. But then I hadn't lost hours of work inputting crucial financial information, had I?

using them. For example, only retail VAT users are able to analyse their sources of income between different categories (I admit to defeat in understanding why this restriction has been imposed).

For a software package aimed at the very small business and for "people who have no knowledge of computers whatsoever", the menu arrangement could be a lot more straightforward. If my experience is typical, it's also far too easy to accidentally crash the program. And a lot of the advantages of using computerised accounts are negated by the lack of on-screen assistance.

For example, when entering a payment made, you will be asked to key in the relevant analysis code, to identify the type of expenditure being incurred. There is no provision for calling up the list of these codes on-screen. Instead, as the manual tells the user, "You have pinned up near the computer a list of the analysis codes in use". Incidentally, over twenty of these codes are predetermined, and although there is some merit in including automatically the obvious areas of expense (rent, light and heat, telephone and so on), a facility to delete or rename categories which were not appropriate would probably have been preferred.

Micro Simplex includes provision for unpaid bills, and a limited arrangement for coping with credit sales, but in practice the program would not be a good bet for any level of credit business. There's also a facility to produce a profit and loss account, although this also needs to be treated cautiously, as the program cannot cope with proper treatment of capital depreciation and other profit and loss account adjustments.

Potential purchasers of Micro Simplex are able to borrow an introductory video, explaining the workings of the program. This is a welcome service, only slightly spoilt by the patchy quality of the video. Unfortunately, the same qualification must be made about the standard of the software itself.







### SCRIPT2BASE and TEXT2BASE

£29.95 each • Encyclosoft • 0270 811890

Encyclosoft (of former FT=8B renown) have just released two free-form databases to be used with either of your favourite word processors – LocoScript 2 or Protext. Script2Base and Text2Base now use ordinary (non Ascii) text files, created and edited with the word processor of your choice. The beauty of these databases, however, is that you're not confined to a rigid, pre-defined format in which to store your data. You can store single words, sentences or even whole paragraphs.



Script2Base and Text2Base allow you to organise your collection of discs like an encyclopaedia. Each individual disc is a volume and each file on that disc is like a chapter. As with an encyclopaedia, though, there isn't always a logical progression of ideas between chapters and volumes. Using Script2Base, you can create up to five different indexes for each volume. You can then categorise these indexes as you wish.

Imagine you are a historian with a huge collection of discs on which you've stored details of events connected with various centuries, countries and monarchies. Your indexes could then be Royal Families, Battles, Religion, Politics and Other, for example. You have the tools to browse through these indexes on successive discs, looking for items of interest.

The data files which the databases use are ordinary text files. You prepare them with the word processor of your choice and use the same word processor to edit them. Unless you've got Flipper, though, you won't be able to do this from within the database – a little annoying as it means you have to swap applications whenever you need to update your data files.

As you type in your text file, all you have to do is enclose the key words and phrases to be included in your index within various code styles. Keywords relevant to Royal Families, for example, might be boldened, anything to do with Battles could be italicised, religious affairs might be underlined and so on. (These style specifications, incidentally, have no effect on the way documents are printed out from the word processor). Then all you have to do is tag the files containing these highlighted passages so that the program knows to include them in its indexes.

When the time comes to Search for a particular keyword (you need only type part of it), the program will present you with an alphabetical list of every occurrence of it on that particular disc along with the option of opening the file to which it belongs.

You can also send to the printer any part of a document on a line by line basis. You must only specify the start and end line numbers. Another bonus is being able to construct up to ten new files that are made up of selected parts of several existing text files. This means that you can keep notes in separate files and pull them all together at a later date.

The great thing about these databases, is that once you're inside them, you can change discs as many times as you want. That way, you can work with your whole collection using the same indexes.

On the whole, these databases are very well-designed and will be a welcome addition to anyone who has a wide collection of discs containing data loosely concerned with the same subject. Although it's unfortunate that the databases have no text-editing facilities, our main criticism of Encyclosoft's database duo was their respective manuals. They're dreadfully unclear and will be virtually useless as far as the completely naive user is concerned.

**RANGE OF FEATURES 4**  
**EASE OF USE 3**  
**PERFORMANCE 4**  
**DOCUMENTATION 1**  
**8000 PLUS VALUE VERDICT 4**

### VERBIAGE

£19.95 • Tyresoft • 0602 285470

What a strange title for a word puzzle. A handy 1916 dictionary translates verbiage as 'word slaughter'. An apt term, however, as this is just what the game does; only it is you who is likely to be slaughtered.

Verbiage is a game which pits your skills against those of the PCW. To put it very simply the first part of the game consists of two qualifying rounds, making it similar in essence to the television programme Catch Word. In the first of these rounds the computer selects nine letters, a random mixture of consonants and vowels. Following this, both you and your opponent have to construct the longest valid English word. You have to achieve this against the clock or rather against a timer which counts down from 20 seconds.

The winner is the one who managed to create the longest word. Both players accumulate points for their efforts and these are then carried forward and added to those scored in the second round. This next round turns the tables meaning that it falls to you, rather than the PCW, to dictate which of the nine chosen letters are to be consonants or vowels. The highest aggregate score from the two qualifying rounds then determines who has the first crack at the next game, which is hangman. The overall victor is whoever

solves the hangman puzzle.

If you think this sounds easy, well just go ahead and try it. For a start the program comes with its own lexicon. As you would expect, this contains thousands of words which it wastes no time in consulting and then using. Although if you are quick in your choice (say less than 5 seconds) you can usually restrict the PCW to a 3- or 4-letter word. Fortunately it is possible for you to cheat by claiming a nonsense word (otherwise we wouldn't have had a shot at hangman at all).

The way in which Tyresoft manages to compress the dictionary is an impressive feat of software engineering. Even so the program takes over 90 seconds to load from CP/M. One of the more remarkable aspects of the package must be the stunning graphics, which sink rather than scroll on and off the screen.

On the flip side of the disk is WORDAID, a collection of utilities in the form of a crossword companion. There are options to make anagrams of whole words, to construct partial words from the word specified, and to find words with missing letters. In all the package has everything to recommend it, and at £19.95 it won't break the bank.

**RANGE OF FEATURES 4**  
**EASE OF USE 3**  
**PERFORMANCE 3**  
**DOCUMENTATION 3**  
**8000 PLUS VALUE VERDICT 3**

# FOREVER

Can your PCW catapult you into literary immortality? Rod Lawton, throws his hat into the ring



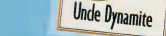
*"I have nothing to offer but blood, toil, tears and sweat." Winston Churchill.*

Blood? A little strong maybe. But then it can feel like you're trying to get blood out of a stone when you've been staring at that blank PCW screen for the past three hours.

Toil? It's not difficult to type words on a screen, but it's another matter twisting them round, sprucing them up and throwing them out to the point where they're worth reading.

Tears? You bet. Usually when you reread your seven and a half-hour typing marathon and realise it's only fit for the bin.

Sweat? I'm afraid so. You see, unless you're a rare genius, the chances are that whatever you've written is going to have to be revised, revised...and revised again.



**N**ever trust the artist. Trust the tale. D.H. Lawrence. Auntie Nellie might be convinced you're an excellent writer, but it pays to get a more objective opinion than that of an old lady who calls you 'her dearest boy' and still sends you two pounds for your birthday even though you're 43.

It's one thing being gripped with the determination to write a novel, another to actually do it. There are a number of warning signs to watch out for. For example, if the urge to write has only come upon you since you opened the gas bill and were forced to ponder the social inequalities of inherited wealth, then the chances are you're going to lose interest in your five-volume magnum opus approximately ten minutes after you start it.

Research is important too - it helps if you get the facts right from the very beginning. It can be very disheartening to learn 30,000 words into your epic that Adolf Hitler was born a little too late to be Neville Chamberlain's stepfather, and that there is no way he could have made a hundred million dollars out of masterminding the construction of a giant South American rubber wall.

## Revising your opinions

What keeps amateur writers amateur is that they seldom revise what they've written. Real writing can be separated into two activities - getting the words down, and then revising them. Frequently, it's not until you've hammered out a first draft that it occurs to you that you haven't actually got the faintest idea what you're talking about.

Real words, as seen on either a screen or a piece of paper, are merciless. When your transient thoughts are made permanent, it gives you an uncomfortably large amount of time to study them, and to find out what a half-baked wittering prat you nearly made of yourself.

So revision is hugely important. Think of a great work of literature as a painting. All you see is

## Speak to my agent

Literary agents are highly useful people who will undertake to place your work and negotiate on your behalf for a small proportion (usually 10%) of your earnings. So why bother contacting publishers yourself at all?

Well, agents tend to only take on the work of established authors, and in order to become established you have to sell some books, and to sell some books you really need an agent... You're on your own at first. Agents are really there only to take over the day to day marketing of commercially proven work. They're not there to help beginners on the road to fame and fortune. Still, agents will sometimes take on the work of an unpublished author if you can impress them enough.

Curtis Brown are the largest, and one of the longest-established firms of agents in the country. They have specialists dealing with all types of manuscript, and also place work for films, theatre, television and radio. For budding novelists, they offer the following advice.

Agents exist primarily to market the work of professional authors (i.e. those who produce commercially saleable work), but they are always looking for new writers.

Novellists stand more chance of getting their work published through an agent than if they approach publishers directly (though highly specialist non-fiction writers might be better off dealing directly with one of the small numbers of publishers working in their particular field - check the *Writers' and Artists' Yearbook* for suitable candidates.)

In the first instance, new authors should send a description of themselves and their background, plus a sample of their manuscript (say a synopsis and the first two chapters). This will be enough to tell the agent whether the submission is worth pursuing.

Avoid autobiographical work - no matter how well-written and poignant, it's seldom of any interest except to you and those around you.

That 'sex sells' on its own is a false impression, though 'sexy soaps' continue to do well. To be accepted, your book needs to be more than just well-written and constructed - it has to be exceptional. Only about 5% of submissions are followed up, and only 1% are published. Be patient. An agent might receive as many as 80 submissions a month.

Agents will generally be more reluctant to offer constructive criticism than publishers, simply because of the quantity of work they receive.

Lastly, the assessment of books - particularly works of fiction - is extremely subjective. If one agent turns you down, just keep on trying...

the beautiful, flawless result. You don't see the paint having to be squeezed out of the tube, poked around on the palette, shoved on the canvas and scraped around for a fortnight.

Of course, the quest for ultimate perfection in the form of too much revision can be a bad thing. The PCW has naturally revolutionised the editing process, making it so easy to make minor changes that it's tempting to overlook the need for major ones. It's been said that no amount of genius can overcome a preoccupation with detail, and it's all too easy to find yourself loading up your manuscript when it gets rejected and changing one word every three

# AMBER II

rowing metaphors to the wind, guides you through to publishing a novel.

chapters and thinking that's going to fix it.

The great Ernest Hemingway was reputed to have rewritten the ending to *A Farewell To Arms* 49 times, just to "get the words right". If he'd had a PCW he'd probably still be at it now.

## What's your line?

Best-selling novels can fall into a number of genres. Each field has its own styles and pitfalls. Science Fiction, for example, is as big today as ever it was, but things have moved on a bit since "Invasion of the Bodysnatchers". Definitely passe are: sword-waving Neanderthals with three apostrophes and no vowels in their names, nomadic five-mile-long spaceships filled with philosophising weeds and omnipotent aliens who emerge from pyramids/ Atlantis/ Alpha Centauri to save/ destroy mankind.

Westerns plod on regardless it seems, but since the genre possesses a kudos rating somewhere below train-spotting, budding authors would be well advised to use a pseudonym.

Sex romps are harder to write than you might think. Narrative skill is obviously at a higher premium than knowledge of nineteenth century Albanian peasant cuisine, but you must have an endless capacity for detail, a gynaecologist's understanding of the human body and an endless thirst for...er...knowledge.

Spy novels are quite difficult. Ever since Le Carre's "Tinker Tailor Soldier Spy" the demand has been for books so convoluted and involved that their authors take their secrets to their graves. Probably because they haven't quite worked out what's going on themselves.

Crime thrillers are the staple diet of most casual readers. Try to keep abreast of the fashions. It's best if your hero is an alcoholic, even better if he's divorced, and best of all if he's got some fearful dark secret in his past that has haunted him ever after. Like being in the same plot five years ago. Past master of the art has to be Raymond Chandler, whose style you imitate at your peril.

Sagas are potentially the most lucrative area of

fiction to get into, since they offer such potential for sequels.

Avoid windswept Yorkshire moors, hospitals and Cornish fishing villages. And beware of shooting your bolt too soon. It's difficult to find a spicy role for young Molly McMilligan, when mother Morgan was an illegitimate pickpocketing murderess who dies in a lava pit.

## A second opinion

"What is written without effort is in general read without pleasure." **Samuel Johnson**. Sad but true. And perhaps hardest of all is typing the first word on that blank screen. This is what is commonly known as the dreaded "writer's block" syndrome.

One of the simplest solutions is simply to sit down and start typing. It doesn't matter what it's about. You might rant for half an hour about the infringement on civil liberties imposed by next door's Chihuahua urinating through the hole in your fence, but at least you'll get it out of your system. A lot more productive than the usual alternative – making sixteen cups of coffee, polishing the anglepoise, counting your paperclips and fashioning special tools for poking the dust out of the corners of monitor screens.

Authors cannot work in total isolation. Sooner or later they must show their work to someone else to get an unbiased opinion. See if there's a writers' circle in your area. Show your work to your friends, the people you work with, your old teachers.

Don't let them get away with just saying they don't like it. Get them to spell out exactly what they think you've done wrong. Make them go into detail. Get them to help you analyse your mistakes. And resist the temptation to tell them to "write it your bloody-self then" when they prove to have rather more detailed opinions than you anticipated.

## The end

No-one will tell you writing a best-seller or even making a bare living from writing fiction is easy. Anyone who tells you otherwise is not telling the truth. Despite our cautionary tone, however, if you think you've got what it takes, then it's worth persevering. Who knows, there might be another Catherine Cookson out there reading these pages even now. Or an embryonic Wilbur Smith (God forbid). So don't just sit there – start typing! ■

## Wages for pages

How much can you earn? Blockbusting first novels are a rarity, so forget about those seven-figure advances you read about. You've done well if your first novel brings in more than a few thousand pounds. Still, you've proved you can do it, and it is only the first...

## Imprint

You've won the battle, now fight the war! Finish your masterpiece, and you're only half way there – now you've got to sell it.

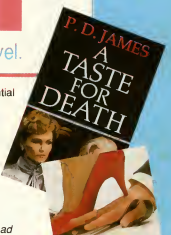
Choose the right publisher. It's no good sending "Revelations of a Transvestite Nymphomaniac" to a publisher of Hebrew religious manuscripts. The "Writers' and Artists' Yearbook" is a valuable source of reference here.

If your work is accepted, check to see if your publisher will take it on disc – many will these days, and it'll save you a lot of time, trouble and postage.

Your work should be printed double-spaced on one side only of A4 paper, with generous left and right margins.

Allow at least six weeks to go by before making tentative enquiries about your submission. An editorial department will typically receive half a dozen full-length manuscripts per day.

Enclose return postage if you expect a reply. Particularly if you're sending in unsolicited work.







# INVESTOR

David Frost looks at a program to help you keep track of the millions

## INVESTOR

£29.95 • B & B Software • 0240 242946

Have you ever fancied yourself as a wheeler and dealer? Investor is the most recent in a series of programs designed to assist the share owner in the management of a portfolio and to help in the choice of shares to buy and sell.

Investor will allow up to 300 stocks, shares, or unit trusts to be kept in its library. 250 were supplied with the review copy and others can be added or deleted as required. Of course, keeping 300 prices up to date is a chore and the program takes several minutes to store and analyse them, so you will probably settle for a smaller library. Four years' worth of prices can be kept if they are recorded daily, and five years if recording is weekly. In both cases, after 52 entries the historic record is adjusted to fortnightly intervals.

The stock analysis part of the program gives four options. Sustained Short Term Growth Analysis looks at performance in the short term by comparing the preceding six weeks with the 10-week moving average. Period Growth Analysis looks at growth rate over a selected period from as little as two days up to five years, while Recovery Performance measures change since the lowest point in the previous year to 18 months. The Best Buys Analysis identifies the stock performing best in the program's opinion and is based mainly on short term growth and recovery.

## Seeing your analysis

In each case stocks are listed in order of performance and you can call up graphs of price movement for individual stocks. Two graphs are produced, one showing long term movement and the other the preceding 12 months. Linear or logarithmic options are available and a 10-week moving average can be superimposed on the 12-month graph.

Unfortunately the graphs are small and price movements difficult to see. The 10-week moving average is especially difficult to interpret if the price has only moved by a small amount. Serious

chart followers will find the 10-week average inhibiting and would prefer the flexibility of choosing their own period and deciding whether to have the average centred or lagged.

The sensible investor always keeps some money in a cash account and Investor will keep track of fixed interest investments in the accounts part of the portfolio monitor. Deposits and withdrawals can be made and there is a running total of the account. Interest is automatically calculated according to the rate set.

Toggling to the stock section of the portfolio monitor gives access to a range of features. Up to 40 shares can be held in each portfolio. Purchases and sales, together with other information such as yield and P/E ratio can be entered, whilst profit and annual growth are calculated.

## Loss leader

An interesting feature is the ability to set a stop-loss percentage figure. If prices fall to or past the selected amount a warning is displayed on screen. A graphics facility, similar to that in the stock analysis option, is available for each share held in the portfolio. Notes can be added to the information held in the portfolio monitor.

When stock is sold it is transferred to a data record file

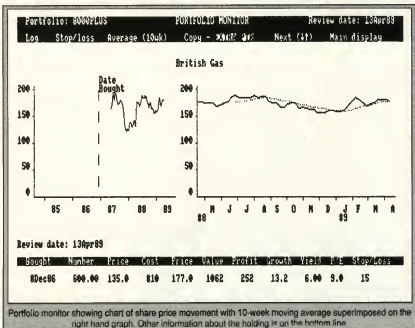
## Health warning

The value of stocks and shares may fall as well as rise. No investment analysis program guarantees to make you a profit. The key to success with this type of program lies in selecting the right shares or unit trusts to put in the library. You will need to give careful thought to its contents.

## Satisfaction guaranteed

Investor comes on a single disc. The program runs from CP/M and the manual tells you how to make a self booting disc. 9512 owners can use the program but cannot print the graphics. 512k machines will run the program faster than those with 256k. There is a 25 page manual on disc in the form of a LotusScript 1 file called PRNTEME.

Investor virtually guarantees a profit! Registered owners are allowed to copy and sell the program at its normal selling price, provided they inform the author and send £15. Simple - sell two copies and you have covered your initial outlay. The program disc has an honesty box to encourage anyone who finds himself in possession of a pirated copy to register. B & B's address is B & B Software, PO Box 321, High Wycombe, Bucks.



## PLUSES

- ▲ Manual is easy to follow
- ▲ Records shareholdings, dividends and cash accounts
- ▲ Dividend printout for tax purposes
- ▲ Four methods of share price analysis

## MINUSES

- ▼ No ability to calculate taxable gains
- ▼ Graphs are small and lack expansion facility

RANGE OF FEATURES 4  
EASE OF USE 4

DOCUMENTATION 4  
PERFORMANCE 4

VALUE VERDICT 4/5

from which selective printouts can be made to assist in filling tax returns. There is no facility for applying an index figure to the gain or for subtracting buying/selling costs from the profit. Dividends can similarly be printed in a form acceptable to the Inland Revenue.

Investor's nearest rival is Stockmarket (reviewed in October 1988). Investor leads on price, most aspects of stock analysis and the ability to enter notes against share holdings. Stockmarket is fast in use, has better graphics and greater flexibility in the use of moving averages. There is little to choose between them for recording portfolio information and overall both are likely to satisfy the average investor. ■

# Add style to your PCW – with LocoFont

LocoFont gives you a range of typestyles to use on your PCW's built in matrix printer. With LocoFont you can match your typestyle to your mood – Roman for an important letter to the bank manager, Script or Penman for more personal correspondence...

There are 14 typestyles to choose from – 10 in Set 1 and 4 specialist fonts in Set 2.

## Set 1 £19.95

Please find enclosed confirmation of your order for an additional 50 brass fittings with screw threads. But note...  
Standard ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Taking as our hypothesis  $\nabla(\Sigma\Theta\Sigma) \approx \infty$   
the argument gives the result  $\int \Sigma\Theta\Sigma_1 = 0$   
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Copper Plate

You are invited to Ted's housewarming party. The new house is supposed to be finished on the 27th June, ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Script

We're glad to hear that you enjoyed the little "surprise" party that we organised for you on your birthday. I'm sorry that I...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

£2.95

£2.50

£1.95

£4.50

Avocado Pear  
Seafood Cocktail  
Cucumber Soup  
Fresh Mussels  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

## Set 2 £14.95

Word Processor: Used to describe a computer together with special software or simply to describe the documents on a screen before ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

John & Harsen Hough  
27 The Square, West Street,  
Gloucestershire.  
Phone 0542 75634  
abcde ABCDE aBcDE aBcDE aBcDE

Old English

The minutes of the previous meeting were accepted as correct. There were five matters arising which were ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

We have been forced to adopt a tougher approach to returns of faulty product. No returns will be accepted without prior ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Finesse

The Residents Association  
« Annual Fête »  
The fête this year will be held on the 10th June at 2.30 pm  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

After disconnecting the mains power, unscrew the three screws marked 'x' and remove the cover slowly. Be very careful not to ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Modern

The software contained in this package is supplied to you on the terms and conditions indicated below. The opening of this package indicates your acceptance of these terms and conditions. If such ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Mini 150

It seems ages since I last wrote to you – and even longer since we last met. Now that I've got more time why don't we meet up in London one day soon for a ...  
abcde ABCDE aBcDE aBcDE aBcDE  
ABBT 12345 eGbIA \*\*\*\* vDfj/

Penman

## Both sets together SAVE £5

Please send me the following:

FOR THE AMSTRAD PCW 8256/8512 Name

LocoFont Set 1\* £19.95  
LocoFont Set 2\* £14.95  
LocoFont Set 1 & 2\* £29.90  
LocoScript 2 & LocoSpell £34.90  
LocoScript 2 £24.95

Address  
Postcode  
Send to Katy Buchan at:  
LOCOMOTIVE SOFTWARE  
Allen Court, Dorking,  
Surrey, RH4 1YL



# LocoFont

For LocoScript 2  
On the PCW8256/8512

\* For LocoScript 2

Note: All prices include VAT and UK postage

TEL 0306 740606

## Inertia

When a cell entry is completed, the cursor leaps to an adjoining cell, seemingly at random, but in fact in the direction of the last arrow key used. This harmless but irritating eccentricity can be toggled off and on by typing `GN`.

## Specifically required

One word of warning when using SuperCalc on the M drive. When loading and saving from or to a disc, the drive letter must be specified with the filename, otherwise SuperCalc will try either to load a non-existing file from drive M, or worse still, successfully save your work to drive M, in which case it will be consigned to oblivion when you switch off.



## Green machine

The use of the word "Global" is a fine piece of programmers' megalomania. What it means is that the command to which it refers will affect the entire spreadsheet. It has no effect on the rest of the world, and SuperCalc is ecologically harmless.

# A FISTFUL OF DOLLIES

Tim Nott gets down to business with SuperCalc 2

**Y**ou wake up one afternoon with the brilliant idea that will make your fortune. You are going to make dolls' houses. Not the kind of low-budget starter homes that Cindy and Barbie inhabit, but custom-made, hand-crafted replicas of the homes of the rich and famous, costing almost as much as the real thing. In a second flash of inspiration you hit on a name. "Minute Mansions - homes of quality for little people-like-us." You rush off to share the good news with your bank manager.

Six months and a crippling overdraft later, you find that you are devoting large amounts of your time, not to the design and construction of dolls' houses, but to estimates, accounts, PAYE and VAT records. You can't afford to pay a full-time clerk, so what you need is SuperCalc 2.

Why SuperCalc? There are several spreadsheets available for the PCW, all with their plus and minus points, but SuperCalc is the daddy of them all. The latest version is

SuperCalc 4, which can handle the balance sheet of a multi-national (but not, alas, on a PCW). The name SuperCalc, apart from having the all-important capital letter in the middle that denotes superior software, bears a similar relationship to the manipulation of numbers as does Hoover to the extraction of dust.

What can it do? Apart from adding up columns of figures, it can, among many other things, calculate discounts, post amounts to different headings, sort transactions by date or size, use `IF...` Then statements, and extract or append VAT where appropriate. Results can be printed out, and saved either as a working spreadsheet, or as text for inclusion in a `LocoScript` document. Once a skeleton spreadsheet has been created for a particular routine task, it can be saved and used to process fresh data on subsequent occasions. SuperCalc can even run itself - loading up a skeleton spreadsheet, handing back control to you to enter data, then sorting, calculating, saving, printing and carrying forward totals all automatically.

## On the starting grid

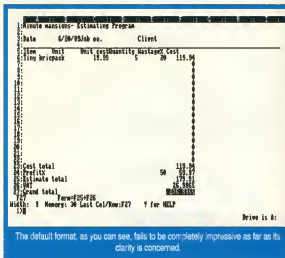
Load SuperCalc, and you will be presented with a screen consisting of nine columns, each nine characters wide, labelled A-I, and 27 numbered rows. What can be seen on the screen at any one time is only a small part of the available space - using the arrow keys to scroll the cursor will reveal that this extends to 63 columns and 254 rows. The spaces formed by the intersection of the columns and rows are known as cells, and referred to by column letter/row number. The cell on which the cursor is positioned is known as the current cell, and, unsurprisingly, the initial current cell is A1.

Two lines at the bottom of the screen provide information about the state of the spreadsheet and the current cell, and

below these is the input line. Input can consist of entering information into a cell, or getting SuperCalc to do something to or with the spreadsheet. Most of the latter consist of what are colourfully known as Slash Commands - initiated by a slash (/) followed by a letter. Other commands include a "Help" facility, which provides relevant information at the touch of a question mark.

Starting with estimating, on the basis that without a price you won't get any business, and will therefore have nothing to account for, you would proceed to create your first spreadsheet as follows.

Three kinds of information can be entered into a cell, numbers, text and formulae. Numbers are entered simply by typing the number then `[RETURN]`. Text must be preceded by a double quote. So, with the cursor at A1, type "Minute Mansions - Estimating Program `[RETURN]`", and this will appear at the top of the screen. Although each cell is only



nine characters wide initially, text will spill out into neighbouring cells providing they are empty.

Move the cursor down column A to row 3, and type "Date `[RETURN]`", then across to C3 and type "Job no. `[RETURN]`", then to E3 and type "Client `[RETURN]`". Now for a different form of text entry. Move to A4 and type a single quote followed by an underline then `[RETURN]`. A horizontal line will shoot across the screen. This is known as repeated text, the characters following the single quote being repeated until they meet an occupied cell or fall off the edge of the spreadsheet.

## Brickpicks

You now know all there is to know about text entry, so move to row 5 and enter the following headings in columns A-F. If you get into trouble with the entry line, pressing the `F1` key will clear it. Don't forget the opening quotes. Enter



Item Unit Unit Cost Quantity Wastage% Cost. When you come to use your spreadsheet, the first five columns under your headings will be left empty for you to enter the data relevant to the particular job. The first item will be tiny bricks, which come in packs of 1000, and cost £19.99 per pack. You will need 5 packs, and the wastage will be 20% as they are very tiny and fall down the cracks in the floor. Enter the text and numbers in the appropriate columns in row 6. Do not include pound or percentage signs. The sixth column will perform the calculation, so a formula needs to be entered. With the cursor at F6 type  $C6*D6*(E6+100)/100$  [RETURN].

Using the computerspeak conventions that a \* means multiply and a / divide, the formula tells SuperCalc to multiply the contents of C6, the unit cost, by the contents of D6, the quantity. Multiply that result by the wastage factor and display the total in F6. If all has gone well, the figure 119.94 will appear.

This formula needs to be repeated for each item in the estimate, with the appropriate row number substituted. Fortunately, SuperCalc will perform this brain-numbing task for you, by means of a Slash Command. Type /R (for replicate), and in response to the prompt type F6 [RETURN], the cell you wish to replicate from, followed by F7:F22 [RETURN], the range of cells you wish to replicate to. Obviously, you can use as many rows as you wish, but this example keeps the spreadsheet to a tidy screensful. Then go to A23, and in cells A23-A27 enter:

Cost total  
Profit%  
Estimate total  
VAT  
Grand total

Now enter the corresponding formulae. In F23 enter =SUM(F6:F22), which, unsurprisingly, tells SuperCalc to display the total of cells F6 to F22. In E24 enter your percentage profit – be greedy and make it 50. In F24 calculate how much money that is with the formula  $F23*E24/100$ . In F25 enter  $F23+F24$ , which adds the profit to the cost total. In F26 enter  $F25*15/100$ , which renders to Nigel his 15%, and in F27 add the VAT to the total with  $F25+F26$ . One last formula. Enter the word TODAY in B3. No quotes. If you've set the system date before the session using DATTIM, the date will magically appear. In American.

## Architectural columns

Your spreadsheet is now up and running, and should look something like the first box – a mess. Bits of text run into each other, and your estimate has been worked out to a hundredth of a penny, which would seem a little over-zealous. Tidy up with some more slash commands.

**Format** is the command needed, so type /F. The first thing you want to do is increase the column width throughout, so type /G (for global) then 12 [RETURN] (the column width required). The spreadsheet spreads, but if you need to use long-winded items such as Brazilian Mahogany or Short Brass Screws in your estimate, column A must be even wider. So type /F again followed by C (for column) followed by A [RETURN] 20 [RETURN]. This makes column A 20 characters wide.

The headings line up badly, so format these next. Right justify the text in row 3 by typing /F followed by R3 [RETURN] TR [RETURN], (Row 3 and Text Right).

The headings over the figures also need to be right-justified, but not those over the "Item" and "Unit" columns. You can format part of a row by /F E C5:F5 [RETURN] TR [RETURN]. (Enter range and Text Right)

Finally, the columns containing money need to have 2 decimal places, so type /FCC [RETURN] S [RETURN] (the first C says 'format a column' and the second is the column to be formatted). The dollar sign denotes money format. Repeat this process for column F.

Minute Mansions- Estimating Program						
	Date	6/20/1989	Job no.	001	Client	Lord Snooty
Item	Unit	Unit Cost	Quantity	Wastage%	Cost	
1 tiny bricks	pack	19.99	5	20	119.94	
2 glue	litre	1.50	1	20	1.20	
3 Oak strip	metre	.75	28	15	24.15	
4 Plywood	sheet	12.65	1.5	10	20.07	
5 Plaster	roll	17.80	1	20	14.24	
6 Paint	litre	1.00	1	20	.80	
7 Nails	box	2.20	1	20	1.76	
8 Wire	metre	1.30	34	15	13.92	
9 Master of Paris	kg	1.25	28	20	25.00	
10 Gups fur	pelit	1.50	1	20	1.20	
11 Labour	hour	1.50	200	0	1500.00	
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23 Cost total						1954.79
24 Profit%					50	977.39
25 Estimate total						2332.14
26 VAT						439.82
27 Grand total						3371.96

Width: 80 Memory: 29 Last Col/Row: F27 ? for HELP

After formatting, the spreadsheet is the very model of clarity

Drive is A:

## A clear field

Test your spreadsheet by entering some more data, and check that the formulae have been correctly entered. It should now look something like the second one. If all is well, now is the time to save your spreadsheet for re-use. First, you need to get rid of the data but leave the headings and formulae intact.

Move the cursor to the job number cell and type O [RETURN]. Do the same for the client's name. The rest of the data can be erased at one go by another slash command. The **Blank** command is the one required, and the cells you want blanked out form a block starting with A6 at the top left hand corner, and ending with E22 at bottom right.

So type /B A6:E22 carefully. All the data will vanish, and the totals reset themselves to zero. Save your work by typing /S, followed by the chosen filename, which must specify the A drive, and choose the option "All". The sequence of key strokes is /S A:ESTIMATE [RETURN] A [RETURN]. Your estimating program now resides on its start up disc awaiting your call, and is loaded from SuperCalc by the /L(load) command. You can clear the spreadsheet then by the Zap command (/Z) or quit SuperCalc completely with /Q.

## Putting the boot in

SuperCalc works best from the M drive. In order to leave a reasonable amount of memory in which to construct your spreadsheet, the main program is split into a 28k COM file, which is loaded into memory, and a 20k OVL or overlay file, which stays on the drive and is consulted by the COM file when needed. This "looking up" process works much faster on the M drive than on disc. In the case of a single drive PCW, this also frees the disc drive for your data discs. You will need a "start of day" disc, and it is advisable to have a different disc, or side of a disc for each application.

Having made a working copy of SuperCalc (and put your masters away) copy PIP.COM, SUBMIT.COM and \*.EMS onto a new disc along with files SC2.COM, SC2.HLP and SC2.OVL and, just for fun, DATTIM.COM (all from the SuperCalc copy). When using PIP, the option [RO] should be used, to ensure that ready-only files are copied, and that they are copied in their entirety. Finally, using RPED, create a PROFILE.SUB file as follows:

```
DATTIM
PIP
<M:=A:SC2.[RO]
<M:=A:CAL[Q]
<
M:
SC2
```

Reset the computer with your new disc in, and if you have everything right, you will first be prompted for the date and time. The date must be entered in American, that is, MM/DD/YY (This utility gets particularly user-friendly towards the end of December). Then the SuperCalc files will be copied onto the M drive and run. Ignore for the moment your PCW's complaint that it can't find a CAL file, as this will be the filetype of the spreadsheet you are about to create.

## NEXT MONTH

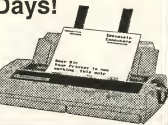
Next month we will look at expenditure, and construct a spreadsheet that will take your bank statements and produce separate monthly totals for materials, transport, wages etc, and separate out the VAT.

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- 1) YOU PAY FOR DISPATCH AND COLLECTION.
- 2) WE REPAIR YOUR FAULTY PCW ITEM WITHIN OUR MIN-MAX CHARGE. (below)
- 3) WE GIVE YOU A FURTHER 10% DISCOUNT OFF OUR ADVERTISED COSTS.

### ● SILVER SERVICE (Back in 6 Working Days)

- 1) YOU SEND US THE FAULTY PCW ITEM FOR REPAIR AT YOUR COST.
- 2) WE FIX IT WITHIN OUR MIN-MAX CHARGE. (see charges below)
- 3) WE SEND IT REPAIRED BACK TO YOU VIA OUR COURIER.

### ● GOLD SERVICE (Back in 4 Working Days)

- 1) WE ARRANGE COURIER COLLECTION AT OUR COST.
  - 2) WE REPAIR AND TEST THE FAULTY ITEM.
  - 3) WE SEND IT BACK TO YOU VIA COURIER.
  - 4) FOR GOLD SERVICE YOU PAY ONLY THE MAXIMUM CHARGE (see below)
- This service is open to Access/Mastercard Card holders only.

PCW REPAIR	Min Charge	Max Charge
Faulty PCW8256/512 Keyboard.....	£15.00	£65.00
Faulty PCW9512 Keyboard.....	£15.00	£95.00
Faulty PCW8256/512 Printer.....	£25.00	£80.00
Faulty PCW9512 Printer.....	£25.00	£115.00
Faulty PCW8256/512 Monitor.....	£30.00	£150.00
Faulty PCW9512 Monitor.....	£30.00	£150.00
Faulty I Don't know what it is! (sending you the lot).....	£50.00	£185.00

Note: For Bronze and Silver Service, Please send payment for our minimum charge over Engineer will inform you of the exact repair cost plus dispatch

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We stock every PCW part! ...just some below:-

### ● COMPLETE AMSTRAD PCW PARTS:-

ORDER CODE	DESCRIPTION	EXCHANGE PRICE	PURCHASE PRICE
271000	PCW8256/512 Complete Working Keyboard.....	£15.00	£65.00
277000	PCW9512 Complete Working Keyboard.....	£15.00	£95.00
271200	PCW8256/512 Complete Working Printer.....	£25.00	£80.00
277200	PCW9512 Complete Working Printer.....	£25.00	£115.00
271300	PCW8256 Complete Working Monitor.....	£30.00	£150.00
271301	PCW9512 Complete Working Monitor.....	£30.00	£150.00
277300	PCW9512 Complete Working Monitor.....	£30.00	£150.00

### ● AMSTRAD PCW CIRCUIT BOARDS:-

ORDER CODE	DESCRIPTION	EXCHANGE PRICE	PURCHASE PRICE
710171	PCW8256 PCB, CPU.....	£58.95	£66.95
710181	PCW9512 PCB, CPU.....	£75.95	£83.95
700771	PCW9512 PCB, CPU.....	£80.00	£97.95
111171	PCW8256/512 PCB, Monitor.....	£48.95	£74.25
800771	PCW9512 PCB, Monitor.....	£48.95	£74.25
111171	PCW8256/512 PCB, Keyboard.....	£21.95	£28.95
500771	PCW9512 PCB, Keyboard.....	£21.95	£28.95
831171	PCW8256/512 PCB, Printer.....	£15.95	£27.95
600771	PCW9512 PCB, Printer.....	£15.95	£27.95

### ● AMSTRAD PCW DISC DRIVES:-

ORDER CODE	DESCRIPTION	EXCHANGE PRICE ONLY
500091	PCW8256/512 'A' Disc Drive (Real Amstrad).....	£84.75
422171	PCW8512 'B' Disc Drive (Real Amstrad).....	£72.75
410771	PCW9512 'B' Disc Drive (Real Amstrad).....	£82.75

### ● AMSTRAD PCW PRINTER PARTS:-

ORDER CODE	DESCRIPTION	EXCHANGE PRICE	PURCHASE PRICE
210771	PCW9512 Printer Mechanism.....	£79.95	£96.95
721171	PCW8256/512 Printer Mechanism.....	£39.95	£51.95
711171	PCW8256/512 Printer Head.....	£39.95	£51.95
781171	PCW8256/512 Motor Head Drive.....	£14.25	£14.25
321171	PCW8256/512 Paper Holder (Black).....	£2.25	£2.25
121171	PCW8256/512 Paper Tray (Grey).....	£3.75	£3.75
432171	PCW8256/512 Printer Head Lid (Black).....	£3.55	£3.55
810771	PCW9512 Tractor Feed Unit.....	£22.95	£22.95
110171	PCW8256/512 Tractor Feed Unit.....	£15.75	£15.75
821171	PCW8256/512 24 Volt DC Cable.....	£5.25	£5.25
821171	PCW8256/512 Printer Feed Knob (Black).....	£5.95	£5.95
321171	PCW8256/512 Printer Ball Bar Knob (Black).....	£5.45	£5.45

### ● AMSTRAD PCW KEYBOARD PARTS:-

ORDER CODE	DESCRIPTION	EXCHANGE PRICE	PURCHASE PRICE
200771	PCW9512 Full Keyboard (Less Case).....	£59.95	£59.95
321171	PCW8256/512 Full Keyboard (Less Case).....	£15.75	£15.75
321171	PCW8256/512 Keyboard DIN Cable.....	£7.25	£7.25

### ● AMSTRAD PCW PARTS MISCELLANEOUS:-

ORDER CODE	DESCRIPTION	EXCHANGE PRICE	PURCHASE PRICE
825611	PCW8256/512 Service Manual.....	£12.00	£12.00
951211	PCW9512 Service Manual.....	£18.00	£18.00
310171	PCW8256/512 On/Off Power Switch.....	£5.25	£5.25

Please Add VAT To All Prices.

## BREAK THE PCW MEMORY BARRIER

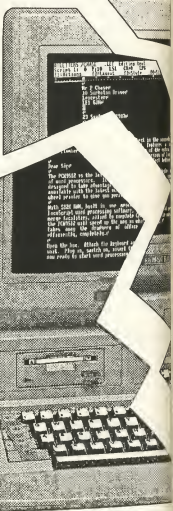
The phone has never stopped ringing, with PCW users begging us to give the extra power needed to exceed their current PCW's processing limitations. Firstly We've expanded the memory and in the near future we will improve the disc storage space.

Our New '512k RAMDRIVE' adds an extra 512k of memory to your Locoscript 2 or CP/M Drive M. (Memory disc drive). This means PCW8512 and PCW9512 owners get a massive 800k Drive M: whereas at a flick of a switch on the RAMDRIVE PCW8256 owners get a mere 624k Drive M:

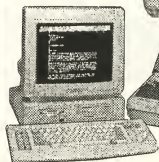
New software is coming on to the market daily i.e.: Locofile, Printer fonts and drivers that eat up vital computer memory. With the 512k RAMDRIVE fitted you can have Thesaurus and Dictionaries all loaded in Drive M: and still be able to copy a disc.

The '512k RAMDRIVE CARD' comes as a memory expansion card that is fitted inside your PCW. Where as the '512k RAMDRIVE PACK' plugs into the expansion slot at the back of your PCW. (Other interfaces can still be fitted on the RAMDRIVE).

The '512k RAMDRIVE CARD' is the most cost effective memory upgrade without all the clutter of interface modules. (Fitting it will void your Amstrad guarantee). 512k RAMDRIVE CARDS fitted by us carry a full 6 months guarantee.



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FITS ALL  
AMSTRAD PCW's



Why Not  
Buy a NEW  
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PCW with  
the 512k  
RAMDRIVE  
Fitted?

### ● NEW AMSTRAD PCW'S WITH 512K RAMDRIVE:-

New PCW8256 with 512k Ramdrive fitted.....	£399.00
New PCW8512 with 512k Ramdrive fitted.....	£499.00
New PCW9512 with 512k Ramdrive fitted.....	£549.00

### ● NEW PCW MONITOR UNITS WITH 512K RAMDRIVE:-

New PCW8256 Monitor Only with 512k Ramdrive.....	£205.00
New PCW8512 Monitor Only with 512k Ramdrive.....	£312.00
New PCW9512 Monitor Only with 512k Ramdrive.....	£334.00

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### The 512k RAMDRIVE Options:-

1) 512k RAMDRIVE CARD fit it yourself.  
Simply follow our step by step instructions. Anyone who has used a soldering iron can fit it to their PCW's Computer Board.

**Only £98.95**

2) 512k RAMDRIVE CARD We fit it for you.

a) We Can Send you a New PCW computer board (Please state which PCW type) with the 512k RAMDRIVE CARD FITTED. If you send your old PCW computer board back we will refund the board cost.

**Only £98.95 Plus £10.00  
fitting and purchase cost of  
CPU PCB.**

b) Send us your PCW monitor under one of our bronze, silver or gold services and we will fit the 512k RAMDRIVE CARD for you.

**Only £98.95 Plus just the  
minimum cost of the  
monitor repair service.**

c) You Can Un-plug your computer board and post it to us.

**Only £98.95 Plus £10.00 fitting  
and we will send it back to  
you ready to plug in.**

3) 512K RAMDRIVE PACK just plugs in! Simply plug the PACK into the back of your PCW. However we feel this is not as effective as fitting inside your PCW, because it can shake loose.

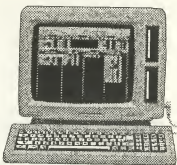
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Your work does  
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is with us.  
We can now  
Hire you a new  
one!

No deposit is required  
if we have your PCW  
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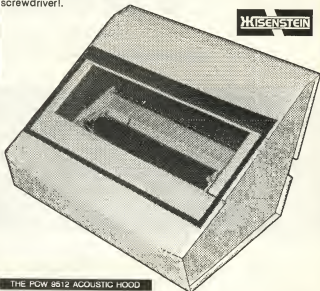
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Hire of PCW8256,8512,9512 per day ..... £10.00  
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This Professionally moulded PVC padded Acoustic hood is designed to reduce the noise of your PCW9512 Printer. As well as match your PCW. It comes in two formats, Flat Pack \*See 8000 PLUS December 1987\* and Ready made for those without a screwdriver!

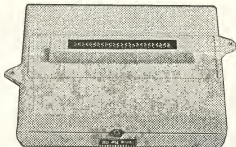


THE PCW 9512 ACOUSTIC HOOD

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**Un-plug the heater will you! ....Sorry wrong one!  
too late your work has all been lost! ....or has it?**

Fitting a Battery Back Pack to your PCW is like taking out insurance, because if the mains power should be turned off or just drop for a fraction of a second while you are typing. The batteries in the back pack stop charging and keep your PCW memory alive. Thus saving your hard typed work in memory. Also built into the Battery Back Pack is a beeper which beeps for a few seconds to tell you that the mains power has gone! After all you could just be turning your PCW Off!



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# THE ILLUSTRATOR

A single picture is worth a thousand words, goes the saying

If you've ever looked at an invitation to a children's party, the school fete or the Women's Institutes production of *Ophelia* and wished there was some way to make it look more enticing, which even the simplest of illustrations can do, then what you need is desktop publishing.

The easiest way to get an image into your documents is with the ubiquitous clip art, and it can be a very good way of making your long text passages more interesting. After a while, though, it's likely that your readers are going to get bored at looking at the same old pictures; so what other avenues are open to you to explore?

## Library pictures

The PCW-FILE Public Domain Library has digitised pictures available for all four DTP programs. Included on the Stop Press 'DIGI-FILES' disc is a ruler which will enable you to make accurate 'to scale' technical drawings like the 3' disc illustration. All the money from this goes to the charity Myalgic Encephalomyelitis Association.

It's the pictures that make desktop publishing so exciting, and there are a variety of ways to get them into your newsletters, leaflets, and other documents.

Using clip art is just one of the options available to you. There's freehand drawings, for example. One of the fastest ways of reproducing exciting illustrations is to use a scanner or digitiser; this can really make your documents stand out.

That's not the end of it. Stop Press has a rather special graph-drawing facility with a selection of up to 64 different patterns that you can use to fill in your pictures (if they're not to your liking, you can always create your own). There is even a feature which will let you move your pattern or symbol into a sprite; this comes in especially handy when you're designing things like circuit diagrams, for instance; a transistor sprite could easily be dragged anywhere on the canvas.

Stop Press gives you the power to design and save your own illustrations, and it needn't be as difficult as you think. Drawing freehand is relatively easy using a mouse; it shouldn't take you too long to acquire the knack of looking at the screen whilst using your mouse on the pad to trace your lines.

The picture of the clown was drawn freehand - which proves the point really (nobody ever accused me of being an artist). I started by creating the thickness of the frame using the icon [G & H-2] and reducing the size by clicking the arrow icon in [G-2]. To create the frame I clicked the icon [G-5] and put the cursor where the top left hand of the frame was to go. Then I positioned the cursor at the proposed bottom right of the frame. A click on the mouse made the frame appear on screen.

## Painting by numbers

I turned the thickness control off by clicking [G & H-2]. This was followed by placing the cursor in [G-1] to draw the outline of the clown. It's obvious that you're going to make mistakes when tackling anything

remotely tricky but Stop Press has a very easy to use eraser. Just click [L-4] and put the cursor over the error by creating a box and moving it where required. Everything under the box now vanishes. This is so easy to use and so quick that you have to be careful not to delete the bits that you want to keep.

Sometimes it's just easier to use the zoom facility [L-3] which puts a small box cursor on the screen. Move the box cursor where you want and in a corner of your screen there will be a magnified version of what's underneath it. Place the cursor in the enlarged box and click the pixels on or off - it's literally as simple as that!

## Pump up the volume

The clown's hair and shirt were filled in using [H-1]. This will create a spray effect of whatever the pattern is in the icon [I-2]; the quicker the mouse is moved the less dense the 'colour'. The hat and front of the waistcoat were filled in using the fill icon [I-1] by placing the cursor inside the area to be filled; clicking the mouse will generate the pattern as in the icon [I-2].

Making the back of the clown's waistcoat a light grey was easy; I merely changed the existing pattern by putting the cursor in one of the four main patterns [H-3]

## Foreign imports

Pictures from other formats can be loaded into Stop Press. Fleet Street Editor, The Desktop Publisher and Newsdesk International graphics are loaded into Stop Press using the CANVAS icon [B-1] and [B-4].

Screens from MasterScan have to be saved using the FSE or NEWSDESK option from within the MasterScan program. Once saved, they then can be loaded using the CANVAS icon in Stop Press.

It's usually advisable to save pictures from all other formats slightly smaller than the screen size, otherwise you get weird effects like wrap around or distortion. Once the picture has been loaded into Stop Press, though, you can alter it by using all the usual facilities.

If you have the Rombo VIDI-PCW then you have the ability to convert graphics from other desktop programs as well as the Trojan Lightpen program. Another useful facility of the VIDI-PCW is its continuous display of all your picture files. After accumulating several hundred pictures, it is possible to refresh your memory as to what the filenames represent by watching them pop up on the screen.

There are various sources of clip-art and digitised pictures for the PCW. Tencation, the authors of Stop Press, have created a package of three discs which includes clip-art, fonts and utilities for the Stop Press program.

HD Design have - very usefully - compiled discs full of clip art which are available for all four PCW DTP programs.

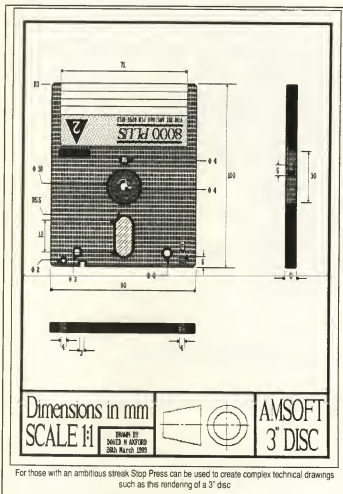
Belmar, meanwhile, have digitised video screens, also for all four DTP programs - plus the Trojan Light Pen.



It's perfectly possible to create your own pictures using Stop Press, as this freehand drawing of a clown shows

# OPERATION MAN

aying. Using sixteen hundred words, Dave Axford agrees



For those with an ambitious streak Stop Press can be used to create complex technical drawings such as this rendering of a 3" disc

## Video star

I use the Rombio VIDI-PCW digitiser for most of my pictures. The hardware consists of an interface which pushes onto the expansion slot at the back of my PCW8512 (this is quite different from the RS232 interface). It has a through port which enables me to piggy-back the interfaces for the mouse and the RS232. A cable with a phono plug connects into the interface at one end, and on the other is attached a BNC socket connected to the video cassette player.

One disc holds the software needed to operate the program plus some useful conversion utilities. There is also a small manual that is fairly self-explanatory.

Any pictures I need are easily recorded using a video camera, recording either onto a cassette or directly into Rombio's Vidi-PCW program and storing onto disc. Digitised pictures on the Vidi PCW disc can be loaded into Stop Press easily.

The other simple way of getting your own images into the PCW is with MasterScan. This will scan any picture and is much cheaper than a digitiser. Ideally the picture or photograph should be photocopied using high contrast.

MasterScan is best for line drawings, though I have managed to get some photographs to appear quite reasonable (not as good as digitised pictures). If you haven't a video camera then this is the next best.

and then moving the cursor back into the fill icon in [1-1] again.

To create the rather loud pattern on the trousers was just as easy.

Clicking icon [1-8] brings up the pattern designer. I then clicked over the pattern I wanted to use and exited from the designing screen. Having checked that the pattern I wanted was now in the pattern box [1-2], I used the fill icon in [1-1] again. The clown

was almost finished apart from a few minor details which needed tidying up with the zoom facility.

Technical drawings can be created easily using Stop Press. I have, for example, created a ruler on the clip art disc; whenever I need it, I bring it up on the screen and draw all my lines and so on to scale. It is accurate on the widths but because of the pixel sizes on screen it does gain 1 millimetre in every 10 centimetres, for some this could be critical but for the majority I imagine this would be quite acceptable. As an example, I created a drawing of a 3" disc - something we can all relate to.

## I had to graph

Images created in this way can be saved for future use. But what if your artistic skills don't extend to clowns or discs? Well don't worry, because even the simplest border, logo, or motif can add a great deal of interest to letters and invitations. A simple design such as a pair of initials intertwined can make a very effective logo which can be put together in a few minutes.

Using a graph can be very useful in helping the reader to comprehend the difficult task of explaining numbers.

For example, a secretary of a football club could make use of graphs to show how badly their team are doing in the league by the use of a histogram (bar chart) or line graph. Financial reports using a pie graph help too. Stop Press has all these facilities. ■

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Digitised video screens	£7.50	Belmar, P.O. box 614, London, E18 1AD	
DTG-PICS		[Cheque to 'M.E. Association' - send a blank disc & return postage]	
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# LocoScript 2 & LocoSpell

**Just using the LocoScript which came with your PCW8256/8512? Then you're missing out...**

**YOU COULD BE :**

**Counting the words in your documents**

LocoSpell finishing	
Words checked:	95
Words to add to dictionary:	0
▶ OK	

**Using a faster better printer**

Printer
MATRIX
✓ L83500
FX80
D630

**Spending less time editing**

▶ Find page	????
End page here	
Last line of page	
Keep current line with:	
?? lines above	
?? lines below	

**Checking your spelling and typing automatically**

Stopped at:	misstake
Replacement:	mistake
▶ Use suggested replacement	
Replace and then edit	
Edit this word	
Consult dictionary	
Ignore this word	
Mark this word correct	
Add to user dictionary	

**Having a choice of print styles**

Character Set	
✓ Standard	
Sans serif	
STRAID	
For printer	
MATRIX	

LocoScript 2 is the improved word processor for your PCW – it's faster, easier to use and gives a better printout. LocoSpell for LocoScript 2 checks and corrects spelling: use it to spot your typing mistakes and count your words. LocoScript 2 works with all your existing documents, so there's no need to re-type anything! ...

We could go on, but there's a 16 page detailed leaflet explaining the benefits of the whole LocoScript 2 family. If you're not already convinced write to Katy Buchan at Locomotive Software and ask for a copy. LocoScript 2 costs **£24.95**, LocoSpell costs **£19.95** – **BUT BUY THEM TOGETHER AND SAVE £10.**

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Name

Address

Postcode

☐ I enclose a cheque for TOTAL £

☐ Please charge my Access/Visa card

Signed

Send to Katy Buchan at:



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**FROM LOCOMOTIVE SOFTWARE – THE CREATORS OF LOCOSCRIPT ON YOUR PCW**



# WHAT DO I SAY?

One of the CP/M's most useful utilities is SUBMIT, which can automate the most complex of operations

So you've bought this computer but you still have to keep telling it what to do. You've told it to do exactly the same thing a dozen times before but it still hasn't learned what you want it to do; it's ridiculous, aren't these computers supposed to be clever?

Well they aren't, they're very, very stupid. The only way to get them to do anything at all is to tell them so every time you want something to happen. Or is it?

There is rather a neat way around the problem of having to repeat yourself every time something needs doing. You can get the computer to tell itself what to do.

Clearly the more of the work the computer can be persuaded to take on, the less you will have to do yourself.

It isn't difficult to get the whole series of commands collected together in one file and carried out automatically on receipt of a single command - something like GO perhaps.

Last month we mentioned SETDEF, and how the PCW can be made to look for SUB files as well as COM files. This month we're going to look at practical applications of this technique. Using the SETDEF utility to set the PCW up this way means that if you were to type GO on the command line and there was no GO.COM file the PCW will hunt for a GO.SUB file to use instead. This effectively adds commands to your PCW. Having suggested the idea let's do it.

For the sake of illustration (and who knows, it may be true) we will assume you are a programmer, and further, that you use the supplied utilities, MAC and HEXCOM but your own editor, VDO2 (on our subscribers' disc). Don't worry if you're not and you don't, it's just that this combination will provide lots of opportunity for us to show you examples of how to use SUBMIT.

The very first thing you want to happen is for these files to be copied across into the M drive whenever you start a programming session (and the same principles apply whatever uses your PCW is put to). There are two ways to do this depending on whether you always start programming when you switch on or just do it for relaxation (why not?).

First, we will write a file to copy the three files you need into M. Call it PROGOCOPY.SUB and put in these five lines:

```
pip
<M:=a:vdo2.com[o]
<M:=a:mac.com[o]
<M:=a:hexcom.com[o]
<
```

Once this is in place every time you type PROGOCOPY and press [RETURN] SUBMIT will read this file and carry out the commands as if they had been typed after the A prompt. First off PIP will be loaded since this is the first command in the file. But what of the lines beginning with a 'less than' sign? Surely this isn't normally typed at the command line? Well, this symbol is the redirection symbol. It tells SUBMIT to feed the lines to the application or utility that has just been loaded and to pretend it really comes from the keyboard.

Obviously this is useful since SUBMIT wouldn't be helping a lot if, once it loaded PIP, you then had to do all the rest yourself. Persuading the PCW to all the work is the whole point of the exercise.

So, assuming PIP is on the A disc it will now run and the three following instructions will be executed. In this case the

idea is to copy the three named files from the A disc to the M drive; remember that the 'less than' sign is an instruction for PIP to take its input from the following lines rather than from the keyboard.

The final line looks as if it has nothing on it but it has; when it was written, a [RETURN] followed the <, and as long as there is nothing else - just a 'less than' symbol - CP/M will then return you to the A prompt.

## Automatic files

The SUBMIT file you've just written can be called anytime simply by typing SUBMIT PROGOCOPY and it will do its thing. But, it is possible to have a submit file run automatically every time you start the PCW.

For this to work you need a disc with the operating system on (the file with an EMS filetype), SUBMIT itself, the files the submit file is going to call on and the actual submit file (in this case PROGOCOPY.SUB). When CP/M first starts up it looks for a file called PROFILE.SUB and if it finds it SUBMIT.COM is called and the PROFILE.SUB file is executed.

To make PROGOCOPY.SUB work when the machine is first started it is only necessary to rename it to PROFILE.SUB. What this means is that you can set up various start of day discs and use a different PROFILE.SUB file on each one. You can make each start of day disc set the PCW up differently to suit the activity you intend to carry out.

For example, if you kept your accounts on a SuperCalc

spreadsheet you could have a start of day disc that copies SuperCalc to drive M whenever you start the PCW. If you have an 8512 then the PROFILE.SUB file can also load files from B just as easily as from A (simply include the correct drive letters in the instructions and file names); our file might look like this:

```
pip
<M:=b:vdo2.com[o]
<M:=a:mac.com[o]
<M:=a:hexcom.com[o]
<
```

Of course it needn't end there, we can do more. VDO2.COM is an editor that likes WordStar commands, and so it won't respond to the cursor keys properly. But Amstrad included a program called SETKEYS to change the way the keyboard works.

## Variable response

The SETKEYS program (which we will cover in detail later) takes an ASCII file as its input, and Amstrad provided one to change the keyboard for WordStar users; it's called KEYS.WP. So to make sure VDO2 worked properly you could include a new line in the submit file. If the files were on B your new submit file will look like this:

```
pip
```

## I say

Any line in a submit file that begins with a semi-colon will be printed to the screen. Nothing else will happen except that SUBMIT will go onto the next line to see if that contains an instruction to be carried out.

These comment lines are a good way to leave messages on the screen telling people what to do next after their machine has been set up for them.

```
?
A) submit progcopy p-pro14
```

```
A) pip
CP/M 3 PIP VERSION 3.0
*M:=a:vdo2.com[o]
*M:=a:mac.com[o]
*M:=a:hexcom.com[o]
*M:=a:P-PRO14.asm
*
```

```
A) setkeys keys.wp
```

```
A) M:
M)
```

The file DOITS.SUB (typed at the top of the screen) will take a single variable as its argument. However, there is nothing to stop you constructing files with up to three variables, just call them \$1, \$2, and \$3.



## Ready wrapped

If you want to see a rather good example of a submit file look at PROFILE.ENG on side two of your system discs. It's intended that this file can simply be renamed and used as it is as a PROFILE.SUB file on startup. Of course, there's nothing to stop you altering it as much as you like

```
<m:=b:vdo2.com[o]
<m:=a:mac.com[o]
<m:=a:hexcom.com[o]
<
b:setkeys keys.wp
But you can do even more
interesting things than those
you've seen so far. SUBMIT
will accept variables, that is
to say that you can put a
piece of text into your
SUBMIT file and have it
mean something different
every time you use that file.
This means that the same
SUB file can be made to do
different things every time
```

## Well situated

In order to do its little tricks SUBMIT has to read the submit file and then build a temporary file containing the commands to be executed. Normally this is placed on on the default disc (usually the one containing both the SUBMIT utility and the file it's executing). This would normally mean that you can't run SUBMIT from a write-protected disc.

However, if the SETDEF utility has been invoked and the disc for temporary files set to M first then there is no problem running from a write-protected disc. This technique is especially useful if you keep your start of day disc protected for security (the little tabs on the disc pushed down).

```
M>type doit.sub
mac $1.aaa
hexcom $1

M>submit doit p-pro14

M>mac P-PRO14.aaa
CP/M MACRO ASSEMBLY 2.0
$115
***** USE FACTOR
END OF ASSEMBLY

M>hexcom P-PRO14
HEXCOM VERS: 3.00

FIRST ADDRESS 0100
LAST ADDRESS 0114
BYTES READ 0015
RECORDS WRITTEN 01

M>■
```

This is how a submit file like PROGCOPI.SUB looks when it's in action. There is a way of turning off this display if you don't want it to be seen, which we will come to another day.

you call it. Staying with the programming analogy, let's add a variable to the SUBMIT file we've already made, adding lines so that it looks like this:

```
pip
<m:=b:vdo2.com[o]
<m:=a:mac.com[o]
<m:=a:hexcom.com[o]
<m:=b:$1.asm
<
b:setkeys keys.wp
m:
vdo2 $1.asm
```

```
M>type profile.eng
setdef m1,* [order = (sub,com)]
daisy a4 bottom=64
pip
<m:=dir.com
<m:=pip.com
<m:=set.com
<m:=submit.com
<
M>■
```

For a good example of a submit file take a look at PROFILE.ENG on side two of your system discs.

If this file is called PROGCOPI.SUB it can now be called with the line:

**submit progcopy q-pro14**  
We now have three items on the command line. The sub file will now copy all your programming files into M from wherever they reside, it will then replace the \$1 variable with the text **p-pro14** (programmers call everything TEST or else some exotic initials) and copy across the program you're working on.

## A hex on it

The last two lines will now change the default drive to M and run VDO2 with the file p-pro14.asm loaded and ready for editing. Fairly impressive stuff this, and since you're doing so well how about one last example of automating a process with SUBMIT and variables? Look at the following lines:

```
mac $1.aaa
hexcom $1
era $1.bak
era $1.hex
vdo2 $1.prn
```

You use this file by typing the line:  
**submit doit p-pro14**

What happens is that MAC tries to assemble **p-pro14.asm**. If it succeeds then HEXCOM converts the HEX file to a COM file. More often the process fails and you need to find out why, so this submit file goes on to **era** the BAK files (to save space), **era** old HEX files (so that HEXCOM doesn't use a previous version) and load the editor with the PRN file containing the error codes and your original ASM source.

This submit file can be copied across to the M drive along with your other files at the start of a session and used for any program you're working on providing a handy new utility.

With a bit of thought these techniques can be used to make any oft repeated tasks a lot easier. For example files can be automatically copied to a backup disc at the end of a working day using a simple submit file (call it BACKUP).

In combination with SETDEF (discussed last month) the SUBMIT utility can be used to perform sequences of action of any complexity on all your drives at once. Obviously, this can not just speed up your work but cut down on mistakes; once a task is put into a submit file the PCW, being very stupid, simply can't get it wrong. ■

## How to write submit files

Submit files have to be nice clean ASCII files or they won't work. Just using the facilities provided by the basic PCW there are three ways to write them. The easiest, but most long winded method is to use LocoScript and then from the [F1] menu select **Make ASCII file**. Of course, this method is hardly convenient since you have to reboot the machine to get back to CP/M (unless you're using Flipper).

Next simplest is to call up Basic and RPED, which works well enough but still seems a lot of fuss for a small file. Fastest of the lot is to use PIP. Just type **PIP FILENAME.SUB=CON:** and press [RETURN], now everything you type at the keyboard will be sent straight to the file FILENAME.SUB or whatever you called it. Normally, each time you press [RETURN] the cursor will go to the beginning of the line you've just typed. While this works perfectly well you can get a new line by pressing [Alt] after each [RETURN]. When the SUB file is complete (and don't forget the final [RETURN]) finish off with [Alt]z to close the file.

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# THAT'S THE SPIRIT

The Rev. P Goodsell takes his PCW and embarks on a peace-time mission

**A**lthough I'm a rural clergyman, I haven't been one all my life. I do work on days other than Sundays, I regularly enjoy a pint of beer at the local pub and I've even been known to visit the odd computer show. You see, me and computers go back quite a long way.

I served my Navy apprenticeship way back in the early 50s. Learning about analogue computers back then fascinated me. Strange things were afoot: alternators produced 1100 cycle supplies, synchronous motors with three phase windings gave outputs related to such variants as angles of elevation, bearing, pitch and roll, ship's speed, direction and so on. The purpose of all this, you might ask? To enable the ship to aim and fire large guns at a moving target.

Large amplifiers were able to resolve the problems with varying degrees of accuracy. The heavy gun mountings were moved round using further amplifiers and power electrics interfacing with hydraulic motors.

The hub of all this activity comprised a large compartment around the sides of which were built – by today's standards – these positively antediluvian computers. Working in the midst of all those rectifiers, resistors, capacitors and impedances was like being consigned to work in some of the hottest holes Hell has on offer. But I was the 'expert' and, from ship to ship, these compartments slowly began to form my empire. I lived in a little electronic world of my own and I loved it.

## A pilgrim's progress

When I left the Navy, transistors and other strange things were just being talked about. The microchip was, as yet, a far-off dream. I became a priest, and let loose in my newly-acquired domain, I learnt to use cast-off typewriters and file records into large filing cabinets. In my spare moments, I took an Open University degree and waited patiently in the wings for the advent of the poor man's microcomputer.

The Spectrum came along in the meantime. It was able to solve the formulae that I had processed so many years before remarkably quickly – and yet it was so compact. But I also needed a machine that could tame the swathes of administrative paper that were steadily clogging up the

hitherto smooth workings of my parish study. There was only one thing for it: I would have to move upmarket and investigate some of the PCW's more intrepid qualities.

That proved to be a very sound move. Very few days go by without bringing a colossal postal influx to the parish and, although I have recently been given an additional 8512 to share the brunt, I still only have one pair of hands and one set of fingers to tackle the daily workload.

I'm very much a 'one man band' and always have been – trying to play four or five distinct tunes at once. I run LocoScript 2 with LocoSpell and LocoFont installed. I use Mini Office Professional for its database, spreadsheet and graphics and hope to reap the benefits of Stop Press very soon. Often, I'll have different programs running on the two machines simultaneously for instant cross-referencing. Letters, reports, instructions, rotas, committee work, statistical analysis of attendance figures – all zip off the machines at a furious rate.

## Songs of Degrees

The PCW took much of the hardship out of studying for my degree. With the processor's ability to edit and move text and count the number of words that were transmitted – so effortlessly, it seemed – to the screen, my gradings improved by 10% to 20%.

When using LocoScript 2, the knack seems to lie in using lots of different discs – a separate disc for each parish, each task or interest. I use all the stock layouts and, in addition, set up many of the templates on separate groups for copying. There are, for example, different types of letterhead, agenda or minute headings. Other templates may be bigger and more complicated: hymn lists, monthly church duties or even complete services. Code letters or words inserted in blank spaces enable the Exchange routine to substitute names or other information.

Although the basic requirements are the same – the storage and processing of information and its easy retrieval, display and dissemination – Mini Office Professional unfolded all the joys of an integrated package. Up-to-date filing of routine records enables me to tap into so many parcels of parish information. Perhaps I've forgotten a surname or an address but can remember other snippets of information about the family. Maybe I just need to find a plumber to fix the churchyard outside tap. Thank goodness for the search routines of the normal database.

Using a spreadsheet, the distribution of church fees in five different directions becomes child's play; so too does the calculation of expenses to be charged and apportioned fairly between parishes of differing sizes. From car mileage to tax problems – everything's taken care of.

## The old ones are the best

Everything I use on the PCW has to prove its worth, otherwise I would just end up playing with a powerful tool and wasting valuable time. On the other hand, there are occasions when the old methods are better and quicker. I still keep an old-fashioned card index by the 'phone for those one-off numbers and addresses – after all, it's quicker and easier than loading a whole database into the PCW, and, of course, the cards have invariably been printed out from the master database. I also still have to use pen and ink from time to time. All the legal registers I keep – baptisms, marriages and burials, for instance – must still be filled in with proper registrar's ink.



Rev P Goodsell: one-time naval apprentice.

## Share and share alike

I am a regional contact for the Church Computer User's Group and recognised by the British Council of Churches as a 'computer contact', advising on the purchase of computers and church-related software. I'm able to offer 'hands-on' first time experience to my colleagues: if they buy a computer, I can also put them in touch with other experienced users of their chosen machine. In this way, we share our knowledge and experience together.



Way back in the 50s, aiming and firing large guns at a moving target was the primary consideration.

# CLASS DISTINCTION

Sixth-former Simon Payne tells us how his PCW keeps him on top of his subject

It is a good feeling when you finally finish an essay. It may be five minutes to midnight on the day before it is due to be handed in, but at least you have actually completed it. All that remains is to stretch out a lethargic arm and load the paper into the printer.

I think it's still probably quite unusual for someone of my age to make use of a word processor – even these days when computers are scattered all over schools. Word processing has the image of being boring, something which serves the needs of the middle-aged and the office secretary. The simple fact that the PCW's screen display is green or grey on black is a further disincentive: to many people no colour means no fun.

In spite of this, I now do all my A-level essays – and some note-taking – on my 8512. All essays need lots of preparatory reading and no computer can replace a solid text-book. Then there is the all-important essay plan for which a sheet of A4 and an HB pencil suffice. But the rest – once the brain is engaged and LocoScript 2 loaded – is done on the little screen.

## Feeling your way

I actually enjoy writing essays on the PCW (while being drip-fed with Nescafe and chocolate digestives). It would not be nearly as enjoyable if I had not learnt to type. I spent most of the 1987 Christmas holidays hammering away with Lansys's Two Fingers to Touch Typing Conversion Course. This is different from other typing tutors in that it is designed for people who already have a good idea where each of the keys are. Instead of boring exercises consisting of nothing but the letter 'd', for example, it starts right away with sentences that make sense.

When the packet of biscuits is nearly finished, I know it is time to spell-check my work. I would not say my spelling is particularly bad (who can spell 'necessary' anyway?), it tends to be the old 'Slippery Finger Syndrome' more than anything else that catches me out; the word 'the', for instance, quite often comes out as 'teh'. I use LocoSpell with the largest dictionary and have built up several user dictionaries – one for each A-level subject – which are full of words like 'Intercursus' and 'microfibrils'. Waiting for LocoSpell to finish allows time for the kettle to boil anyway.

## Making a little go a long way

If the piece of work is a bit shorter than I would have liked, I print it out in pitch 10. If it is much shorter than I would have liked, I print it out in pitch 10 with CR+1/2. In this way it does not look as short as it would in proportional spacing or pitch 12. So, okay, it's a bit sneaky, but who isn't guilty of deliberately spacing out their handwriting when getting short of things to say?

I have found that teachers accept word processed work

happily, especially now on A-level courses. Some are 'suitably impressed', although I try to stress that I do not use the computer for show to get higher marks. Others, I am sure, wonder if the content will be as good as the presentation.

## Hooked line and cursor

Sometimes, we are given the task of writing notes for homework. The art – or so they say – of good note-taking is to make them look as attractive as possible while



Simon is currently in the lower sixth and is studying English, History and Biology. Although he's not sure what he wants to do in the long-term, he's concentrating hard on his A-levels which he'll be taking next year so that he can get a place at university.

containing all the relevant information. Here good old LocoScript, with its different pitches and layouts, is very useful. I do headings and important words in bold and then have different points indented using [ALT][TAB].

The PCW was also used for some of last year's GCSE coursework. Surprisingly, printed work was not acceptable for one of my subjects. Perhaps they feared the spelling checker (it does stop me from reaching for the dictionary), or perhaps they thought – misguidedly – that since the work was word processed, a parent must have infiltrated it.

With exams very much an occupational hazard of being a student, I've just started using LocoFile to produce revision cards for my A-levels. Each record holds information about one aspect of the course with a brief description and details of where in my notes it appears. Whether it will work remains to be seen. Perhaps I will spend all my time typing data into the computer instead of doing any proper revision.

I think I may have been responsible for starting off something of a trend in my school. Several people have recently begun giving in word processed essays, and one of my teachers has even been seen busy practising his typing in the lunch hour on one of the school's Nimbus computers.

And finally, just imagine the sort of excuses using a PCW for your homework gives you – especially when you don't get a piece of work in on time: 'Well, Sir, I would say in pleading tones, 'I left my disc on the top of the microwave and ...'

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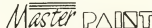
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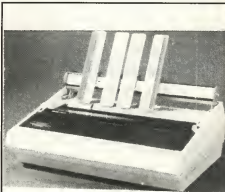
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LocoFile can transform your PCW into the most conveniently-organised desktop filing cabinet. The kind of filing cabinet that will instantly yield all of its secrets at the touch of a button, the type that until now you'd only ever dreamed of owning. When used in conjunction with LocoMail, however, it can successfully perform (provided you've done your job properly) the kind of faultless mailmerge operations that would leave the most efficient human secretary open-mouthed and twitching.

LocoFile provides you with slick, easy-to-use file cards in which you can store separate parcels of information (they might be lots of names and addresses, for example); LocoMail, on the other hand, enables you to produce clear, professional-looking standard documents or letters.

Let's suppose for a moment that you need to send out as many letters as there are parcels of information in the datafile, each one communicating a virtually identical message. It seems reasonable to suppose that the only information that will change from letter to letter will be the personal details of the person who is receiving it — like their name and address. The classic mailshot, in effect. LocoMail commands can be used to extract relevant data or information from a LocoFile datafile (one that contains much more besides) and insert it into its own standard letter.

## Setting a record

Let's take a look at a specific example. The Floggem and Yelp Boarding Kennels run a roaring business looking after their clients'

4-GROUP0 /KENNELS.DAT LocoFile. Printer idle. Using 4: Col:38/40 Line: 7/15

Index: Animal Type Unique sub key Item: Animal Type f5=GoTo f6=Find f7=Extract f8=Options Fx1

f1=Options f2=Index f3=Item f4=Print

Item #	SurName	Title	Initials
1	Kurquat	Mr	B

Owner Address Phone Number  
14 Springleton Lane 01 2345678  
Cherriton Abbas Animal Type  
Portchester Oberman Pischer  
Hampshire Animal Name  
Terminator

Special Needs No Nights  
Recently grilled editors' knee- 12  
caps 3 times a day  
Cost Night  
9.50

8 hidden

3 files  
row 4 8k  
row 5 8k  
row 6 8k  
row 7 8k

A typical database entry with items consisting of — among other things — the breed of animal in question, its name, how long it will be at the kennels and how much its stay will cost per night.

pets whenever they go away on holiday. During the busiest months of the year, they construct a datafile into which they feed details like the names, addresses and telephone numbers of their clients, the duration of their pets' stay at the kennels and, finally, any special requirements that they might have to take care of while

## Reciprocal Agreement

There are a couple of points worth remembering when using LocoFile and LocoMail in a merge together.

The fields (or 'items', as LocoFile quaintly insists on calling them) that you want to insert into your standard letter must all have names or LocoMail won't be able to find them when the merge begins. LocoMail is also renowned for its fussiness so it's vital that these names match, letter for letter, the ones used in the LocoMail document. Having said that, while LocoMail won't tolerate spaces between words in item-names (you have to use Animal Name instead of Animal Name, for instance), spaces are allowed in LocoFile. LocoMail must use an underline, though, wherever LocoFile has a space; hence Owner Address throughout our records, and so on.

You will also have noticed from our example that not all the datafile's items (like Special Needs and Phone Number) have been used in the standard letter. This is perfectly okay. Just worry about getting the item-names that you do use the same right across the board in both the standard letter and the datafile.

letter (requiring payment) over and over again to each of their clients. Using LocoMail, they construct a standard letter of invoice which they will then be able to merge with their datafile; you can see the one they use in the second picture. This condenses the work of a day into an hour.

Merging a LocoFile datafile with a LocoMail standard document uses exactly the same steps

4-GROUP0 /KENNELS.DAT LocoFile. Printer idle. Using 4: Col:38/40 Line: 7/15

Index: Animal Type Unique sub key Item: Animal Type f5=GoTo f6=Find f7=Extract f8=Options Fx1

f1=Options f2=Index f3=Item f4=Print

1 Kurquat Mr B

Owner Address Phone Number  
14 Springleton Lane 01 2345678  
Cherriton Abbas Animal Type  
Portchester Oberman Pischer  
Hampshire Animal Name  
Terminator

Special Needs No Nights  
Recently grilled editors' knee- 12  
caps 3 times a day  
Cost Night  
9.50

8 hidden

3 files  
row 4 8k  
row 5 8k  
row 6 8k  
row 7 8k

Mr Yap's standard letter of invoice, complete with the usual LocoMail (<Mail) and (<Mail) codes, ready for merging.

## Thoroughly Modern LocoMail

When merging a LocoFile datafile with a LocoMail standard document, make sure that you're using the version of LocoMail that has been processed by the installation program supplied on the LocoFile master disc. Other versions can't interpret LocoFile datafiles.

## Designer Files

LocoFile allows you a maximum of 50 separate items and of 8000 characters on any card. Item-names, meanwhile, can be up to 16 characters long.



## When I'm calling you

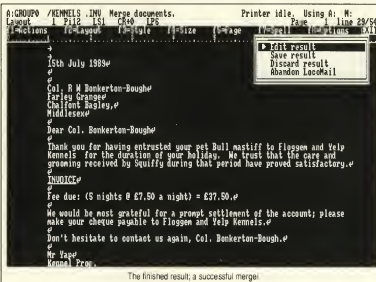
LocoMail datafiles can be inserted into LocoFile easily, although you must make sure that each item-name in the LocoFile datafile corresponds perfectly with its LocoMail counterpart. (As we've seen here, though, the LocoFile item-name can have a space where LocoMail uses the underline character.)

You don't have to have a matching item for every item in the datafile that you want to insert - just for the ones that you want to transfer. If there's an item in the LocoMail datafile that you don't want to transfer to the LocoFile datafile, then simply don't make provision for it in the receiving datafile - otherwise it will transfer. By the same token, you can also have items in the receiving file that the donor file doesn't have - they will simply be left blank when the time comes to transfer.

Open up a copy of your receiving LocoFile datafile on drive M. Press [F1] for the Actions menu and select the Insert data option. You're then prompted to pick out the name of the donor LocoMail datafile (or, more sensibly, a copy of it) and press [ENTER]. Press [ENTER] again to confirm your choices at the Selection menu. And providing there's a matching item in the receiving file for every one in the donor file, LocoFile should smoothly copy the data from one to the other without any trouble at all.

### Government Health Warning

While you're using LocoFile to display a datafile, don't under any circumstances remove the disc on which this datafile is stored; you must remember to exit from LocoFile first. Removing the disc mid-display causes the datafile to be corrupted, and while there are steps you can take to try and retrieve a corrupted file, you may well lose some of your data in the process.



as merging a LocoMail datafile with one. At the Disc Management Screen, highlight the name of your standard document (in this case, KENNELS.INV) with the file cursor and press [M] (for 'merge', funnily enough). Pick out the name of the datafile (in this case, KENNELS.DAT) in exactly the same way and press [ENTER]. Press [ENTER] again to confirm the details that appear on your screen in the selection menu - and away you go.

If you are at all familiar with LocoMail, you can see that this letter is typical of any standard LocoMail letter that is ready to be merged with a datafile. This even extends to incorporating some math.

### Ready reckoner

Each record in the Floggen and Yelp datafile contains two items in which the number of nights the animal in question boards at the kennel and the cost per night are recorded (the latter will vary from animal to animal depending on its size, the amount it eats and how much it is going to cost to satisfy its special needs - contrary to popular belief, grilled editors' kneecaps three times a day is quite an

expensive predilection to satisfy.)

Each invoice, not surprisingly, needs to calculate the cost of the overall stay. This means multiplying the contents of two items: the cost per night (Cost\_Night) by the number of nights (No\_Nights). LocoMail is able to crunch up these numbers and spit out the final product for the finished result without you even having to do so much as break into a sweat - a very handy facility for the purposes of mass invoicing.

### Out of Order

Left entirely to its own devices, LocoMail will 'pass' records through its standard letter in the order in which they were created (or the record-number index). That's not to say however that the order can't be changed. Versions of LocoMail that have been updated by the installation program supplied on the LocoFile master disc include a couple of extra commands which allow you to select the index

that you want before merging.

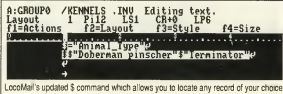
Say Mr Yap wanted his records to be processed in alphabetical order of his clients' surnames. He would insert the following command at the top of his letter: (+Mail)\$=Surname\*(Mail). The records would then be merged accordingly provided he had made sure that the index actually existed in his LocoFile datafile (LocoFile's [F2] 'Create new index' option). Col. Bunkerton-Bough's details would then be fed into the letter before Mr Kumquat's, even though the latter record was created first.

If, on the other hand, he had previously neglected to set up the index on which he wants to 'pass' his letters, then he'd just get one of those characteristically curt 'Name does not exist' messages across his screen. You can also make LocoMail prompt you for the index that you want - just like a 'Fill' command. Before going ahead with a merge, the program will stop at the top of your letter where you have typed (+Mail)\$=?\*(Mail) and dutifully wait for you to type in the item-name that you're indexing on.

Back to Mr Yap; what would he do if he wanted to pick out just one record in his datafile to merge with his letter? He knows, for example, that he's got several Doberman pinschers on his records but he only wants to locate one of them whom he knows goes by the name of Terminator. He has set up his main index - within LocoFile - on Animal Type and constructed a further sub-index on Animal Name. To send out just Terminator's invoice, he would insert the following command at the top of his letter. This ensures that only the one letter (hopefully, the one he wanted) is produced.

As we've seen, the uses to which you can put LocoFile increase considerably when it's used in conjunction with LocoMail. Together, they become a very powerful, integrated program. If you're planning a mail-merge, therefore, it pays to do all your thinking well away from your computer screen before you start with a good, old-fashioned pencil and paper. It could save you hours in the long run.

Note that this article isn't intended to be a LocoMail tutorial. For the full low-down on the dos and don'ts of that particular program, have a read of our LocoMail tutorial series (July to December 88).



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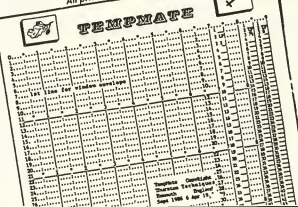
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# DRAWING ANALOGIES

Wren did it. Richard Rogers does it. Now the PCW tries to to help you do it. Tim Smith draws some conclusions.

How would it be to have a little shed at the bottom of the garden, or maybe on the roof, wherein to keep your PCW from prying eyes? Well those things cost money, especially the ready-made jobs. So what about designing and building your own? Out comes the pencil, ruler and reams of paper. Surely your PCW can help? How about turning it into a design centre?

**P** CWdraw, a new program from HTB computing, seeks to aid the PCW owner who might want to plan that garden shed, or even rewire Blackpool promenade.

Software which takes the drudgery from design has been available on other machines for a while now. Design in this sense covers many areas; from furniture design to architectural planning to electronic schematics. All of these share a common bond; they need clear plans to be drawn up. For every new building there are hundreds of drawings each of which is a variation on a theme. This kind of repetition offers fertile ground for computing.

A word processor allows you to produce perfect printed documents first time. All your early draughts appear only on the screen. Computer aided design software does the same for drawings. Moreover, just as a word processor allows you to save useful blocks and phrases, so computer aided design software allows you to build up libraries of symbols such as those for doors, lights or hinges to be pasted in where necessary.

The advantages of drawing (or draughting) software over traditional methods are still manifold, (especially if you think you can't draw). A full-blown designer's desk which will provide you with built-on rules and angles will cost a few hundred pounds. A good computer drawing package will provide the same and more, on your desk, for half the price.

## At full sketch

PCWdraw uses a two-tiered command structure: the first tier is menu-driven while the second is what HTB calls 'Hidden Commands'. The former allows access to such functions as loading files, drawing, and moving saved images. The latter requires the user to press the [ALT] key in conjunction with a number of letters. For example [ALT]S controls the cursor speed while [ALT]B will clear the work space.

An interesting feature of the program is the four ways in which it actually stores data. PCWdraw will store entire screens in 20k files and Windows, which are rectangular areas of screen, in files of up to 3k. It also uses two files, ITEMREC.ITM and DETAIL.DET. The former contains saved drawings (Items) which cannot be more than 3200 pixels in size (about 1 square inch in area). The latter contains lists of commands which PCWdraw calls, unsurprisingly, Details. These can be saved and then repeated whenever the user requires them (see box).

PCWdraw splits the screen into three sections; one central work area comprising 216 rows and 703

columns of pixels (the small blips of light and dark which form characters on the screen). To the bottom left of this is the command line. Around all this is a border which, wastefully, does nothing.

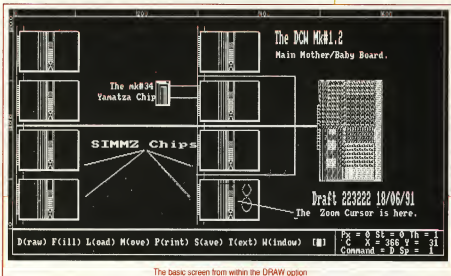
Spreadsheets or desktop publishing programs provide an area on the PCW screen which is merely a small section of the possible work space (a window onto a virtual work area), like using a scroll of paper with only an A4 section visible at any one time. The user is then able to scroll to other sections of a grander design. PCWdraw gives you the screen and nothing else.

## Circle in the Round

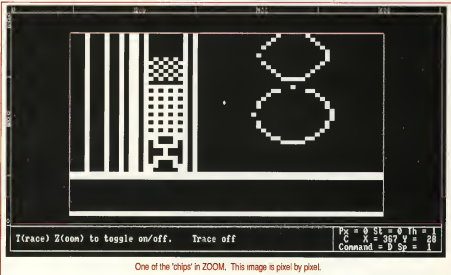
The heart of the program is the **DRAW** command. There are two methods to Draw. The first produces, among many things, lines, circles and rectangles, having first taken co-ordinates from the user. The second, called **TRACE**, is nearly equivalent to freehand sketching. As most of the essential shapes for any large scale work can be produced using the built-in methods, **Trace** only

## By CAD, sir

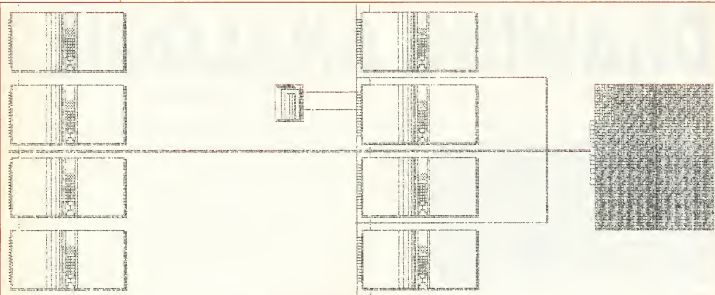
True Computer Aided Design (CAD) has been used in projects as diverse as the Loyds Building by Richard Rogers and Star Wars to design the various space vehicles. This is at the very top end of CAD and would normally run on dedicated graphics machines operated by trained designers. A more terrestrial image, however, is the new Vauxhall Cavalier which has been designed using CAD on a Cray super-computer.



The basic screen from within the DRAW option



One of the 'chips' in ZOOM. This image is pixel by pixel.



The object of the exercise ... the drawn plan. Now build the board!

### If it files good

On finishing a design it is quite likely that you will have two files replete with images you have saved. These will be items REC and Detail.DET. A good idea is to rename both, keeping the suffixes .DET and .REC, and leaving them as library files. Libraries are normally expensive to purchase and not always exactly what you require so this could make sound aesthetic and economic sense.

comes into its own when combined with the **Zoom** function.

Zoom presents a new screen which allows you to edit a small section of a drawing pixel by pixel. Unfortunately this screen cannot be printed on its own.

Providing co-ordinates is achieved in two ways. The first (nudgingly tedious) method means typing each one in at the command line. The second method speeds things up no end. All the user has to do is move the cursor and press [ENTER]. The program then takes the X and Y positions from the screen itself.

We attempted to create plans for a simple desk bridge to hold a monitor. This is where the first drawback(sic) of PCWdraw became apparent. PCWdraw isn't as machine

specific as its name suggests. The screen on the PCW has an aspect ratio of (roughly) 2.1:1....meaning that the pixels are about twice as tall as they are wide. PCWdraw does not take account of this and consequently drawings on screen seem twice as high as they actually are. This is corrected on printing the drawing out.

text is available. Consequently adding titles or footnotes and wrapping them around shapes is easily achievable. Editing text is not that simple, however, as there is no erase mode and the delete keys are neutralized after the entry of the fourth letter!

As a word of warning it is possible (with yet another hidden command) to change the cursor function so that it will turn all addressed pixels on, all of them off or will turn those which are on off and vice versa. Entering text is considered to be a cursor action....make sure that the cursor is set to on!

The object of the whole exercise is to end up with printed plans. PCWdraw allows you to print in three formats: a whole screen, a defined window or the current item. In printing any one of these it will have to be on screen simultaneously. So no rapid printing by calling files from memory.

Once you have your desired image on screen a number of options are open to you, a useful one being the ability to print vertically (down the page). You can also print in condensed format, which bears a striking resemblance to a screen dump ([EXTRA]+[PTR]). Before printing you are prompted for Scale. There are four scales 1,2,4,8. The first prints a pixel as a single dot, the second prints it as a group of two dots and so on up the line. Unlike the screen representation, the print out is clear and true to form. In fact when providing the illustrations printouts had to be referred to with some regularity.

### Drawn out

In conclusion, PCWdraw could be better implemented, at least in our estimation. The overall feel is that this is part of a suite of programs rather than a finished piece. The lack of editing facilities for the Details file would become a major irritant if you were to undertake a large project which required repetition. But HTB have promised that this is in the debugging stage at the time of writing. If there are any significant points arising from this we will inform you of them in next month's issue. However, despite the caveats already noted, the program is full of features which, with practice and imagination, could provide some excellent output and will provide that added touch of professionalism.

HTB claim that PCWdraw is a draughting or drawing package - a good assessment, as unlike true computer aided design, there is no support for plotting devices like a mouse or light pen. HTB say that they're working on this problem which is a significant one for a system which is aimed at replacing the combination of pencil, paper, hand and eye.

At £39.95 PCWdraw feels a little pricey. Overall, if you have a need for clear plans, PCWdraw would be a useful tool which should save on erasers, rulers, headaches and smudged paper....you might even get a shed out of it! ■

## Graphic Detail

The most flexible way of saving information with PCWdraw is the **DETAIL**. In simple terms a Detail is a list of up to 40 commands which are read into a file as you carry them out.

A file with the DET filetype is actually a library file which can contain up to 40 screen details. Opening the **DETAIL.DET** file (or any file with the .DET suffix) is carried out from the Load/Save menu. To use a DET file it must be loaded, which opens it; you can then save or load details to and from it. To start a new DET file simply specify the new name when you choose **LOAD**.

Next, create the drawing in the normal manner. The only difference between the work screen during **DETAIL** and its normal manifestation is that you lose the ability to draw freehand. Constructing details is currently very difficult; however, HTB assure us that a details editor will soon be available.

When we tried to stretch PCWdraw to the 40 detail limit it was distinctly unimpressed and decided to crash the PCW. A good idea would be to use no more than about 35 details to a DET file.

On completing the drawing (or reaching 35 details) you exit from the main work screen and return to the **SAVE** function. Asking to Save again will read the commands from memory into the file you specified and then close the file. The prompt disappears, simple!

Details only save as the commands and the dimensions of a design. They do not retain their actual positions on the screen. This means that on re-loading a detail you are able to place it anywhere on screen and re-scale it. This gives some interesting effects such as copies which are twice the size of the original.

Finally, HTB tell us that **PCOWED**, which is supposed to allow on-screen editing of details will provide the ability to include several Load Detail commands. If this is the case it might even be possible to create animated graphics - a whole new departure for the PCW.

Overcoming this on screen (by giving the X and Y axis relative scales) will produce a duff print out. Frankly this smacks of lazy programming.

Following these gripes it must be said that PCWdraw does provide many useful functions: you can alter line thicknesses (3 options), Fill areas of screen with up to 20 patterns and add text.

### Worth a thousand words

Text entry is achieved from yet another menu. The options available from here are many and varied. Upside down, sideways, microscopic and banner

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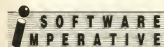
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FLIPPER could do some pretty surprising things. It could split your PCW in two, letting you run *LocoScript 2* in one half and a CP/M program in the other. Or it could let you load two CP/M programs at once if you preferred, one in each half. It could FLIP you from one half to the other in under 3 seconds, any time you wanted. And it wouldn't lose your place.

Unfortunately, there were a few things it

couldn't do. In particular, it couldn't load either *Mini Office Professional* or *LocoFile*. Serious shortcomings indeed.

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# INDUSTRIAL MUSCLE

The PCW is more than a word processor. In fact, as Steve Patient finds out, it's finding its way into industry as a low cost process controller

When you pound the keys on the money machine outside the bank, program your video or set your washing machine for a particular kind of wash, do you ever stop and wonder how the machine knows just what those few numbers you've pressed actually mean?

When you think of industrial computers, the images that spring to mind are often of heavy-duty machines on wheels, computers with rivets around their heavily protected screens and keyboards strong enough to operate with a sledgehammer. The truth of the matter is that most industrial computers can't be seen at all; like those in your washing machine, the supermarket cash register, or the Ford Sierra, they're out of sight and out of mind.

Computers in industry get stuck with all the boring jobs. The kind of thing that the industrial revolution left people doing for twelve hours a day. Load these castings, weigh these castings, drill a hole in each casting as it goes past, put casting in a box, repeat the process two thousand times. This is work for machines but unfortunately it couldn't be done by them until there was some way of getting the machines to perform a variety of complex sequences of actions in response to differing circumstances.

This is where the computer comes in. It can be programmed to alter the way it behaves in response to changing conditions. Actions which are extraordinarily difficult to do with a limited collection of cams and levers – unless a man operates them – are simple when you have thousands of programmable switches at your command to replace the man. The computer provides the switches, you only have to provide the program that controls them.

Then there are jobs which have to be done with utter precision even though they are mindbogglingly boring. A man watching a dial forever, just in case the needle goes over a certain value, wouldn't be reliable no matter how dedicated. That kind of thing is definitely a job for a computer (which won't even need the dial but can read the signal directly); it doesn't get bored, doesn't sleep, doesn't visit the toilet or nip out for a sandwich. So how do you go about putting a computer in control of these various operations?

This brings us to the heart of the problem. One of the reasons for using men to do the boring jobs in industry is that there are so many different kinds of boring job. All washing machines do basically the same thing, as do all keyboards, but not so production lines, they're all different, each one unique. And while signal monitoring isn't difficult the interpretation of those signals can be critically important.

## Special services

The first thing to decide is how fast and powerful a computer you require. If, for example, you need to sample a signal four times a second then a computer that can do it thirty times a second is just as effective as one that can do it three hundred times a second.

Similarly, mechanical objects move relatively slowly compared with electrons. Even the PCW can do many hundreds of calculations per second, quite enough to control most machines – enough so that the PCW program

usually has to have delay loops introduced to give the mechanical devices time to catch up. For a huge number of industrial applications the inexpensive PCW is more than powerful enough.

Even though the actual computer that is intended to do the control work will probably be embedded into the equipment it controls or monitors, the development work needs to be done on an interactive computer – one with a keyboard, screen, discs, languages and editors. Once again

the PCW fits the bill admirably.

So, having decided to develop your one-off industrial controller you go out, buy a PCW, write the programs and construct the necessary interfaces to your equipment; well, no, not really. An in-depth knowledge of programming, the PCW innards, electronics prototyping and mechanical engineering is hardly something you're likely to have acquired by accident. You need an expert.

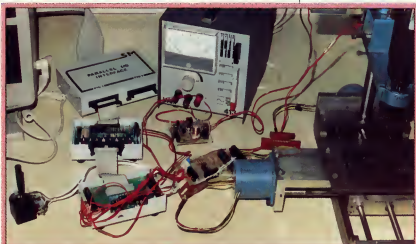
To find out just what's involved in this kind of work we went to the country's leading exponent of bespoke control applications involving the PCW, Steve Marks at SM Engineering. Obviously there are some things he's working on that are confidential; there are also customers who want to protect their investment in research and development, but we did get to look at some of the things being done in industry that show just how much more than a word processor the PCW is.

## PROJECT ONE Learning for the future

Despite talk of the Information Age and the Service Society we still rely on manufacturing for all the things we actually use; and manufacturers rely more and more on being able to employ people who can understand the new

## The perfect host

The computer system used to develop an application is known as the Host System, while the computer that will eventually run it is known as the Target System. In all our examples the PCW is the host. The target can be either SMT Engineering's single board controller or a purpose-built one-off device.



Just some of the bits and pieces available to students in the PCW room at Engron college of Technology. Seen here are the controllers for the PCB drill.

## SM Engineering

Steve Marks started SM Engineering in 1987 while still a lecturer in Software Engineering at Brighton College of Technology. The company kept him so busy that he has since had to give up lecturing except on a freelance basis.

He started out as a Mechanical Engineer but took up electronics and programming when it became clear to him that the future lay in a multidisciplinary approach. Much of industry needs people skilled in mechanical, electronic and software engineering all at once; this is still a fairly unusual combination of skills.

His company now offers consultancy and training to industry as well as design and prototyping services and he is still in demand for lecture courses at his old college.

manufacturing technologies and make them work.

One of the leading centres, working hard to supply the need for industrially biased computer skills, is Brighton College of Technology. They have around twenty rooms stuffed with suites of computers which are used for almost everything except running wordprocessors.

One particular room contains eight PCWs which are used solely for teaching control applications, and naturally enough SM Engineering supplied the interfaces used for doing the work.

Each PCW has a complete set of I/O and test modules on which to test programs.

These programs were being developed using the Devpac80 Assembler from HiSoft and Prospero Pascal. At the time of

writing the room was equipped with a PCB (printed circuit boards) drilling machine made in the school's own workshops and controlled using stepper motors.

The motors were in turn controlled by programs running on the PCW. Two approaches were being taken. The first was to position the drill using a joystick while the program recorded all the movements required; these could then be repeated by the program for any number of PCBs. The second approach was to provide the programs with the co-ordinates on the board where holes were required and let the program calculate the required number of steps for the X axis and Y axis motors (the Z axis is up and down, a stepper motor drives a cam that produces slow downward motion and a rapid upward motion).

The other PCWs were being used for such things as driving seven segment LCD displays (the kind used in digital watches) and dot matrix displays (which can cope with graphics).

The aim in these classes is to take students right through from developing control applications to putting the programs into EPROMS (Programmable ROMS) and finally to using SM Engineering's single board controllers to completely replace the host PCW in the final design.

## PROJECT TWO A job propellerly done

Unlike a business which deals in an actual product, knowledge-based companies inevitably find themselves involved in all sorts of odd, one-off jobs. A good example of this is the work SM Engineering did for Lancing Marine.

The background to this project was Lancing Marine's need to update their computers. They actually had a variety of computers but the really important one was an old Sharp MZ80K. On this Mark Bellamy of Lancing Marine had developed a suite of interactive programs for marlinising engines as well as a separate program (which they now market) to take customers' requirements and provide information about boat speed, prop efficiency, diameter, pitch, blade form, blade area, cavitation, shaft diameter and output as well as doing rudder calculations. They believe the

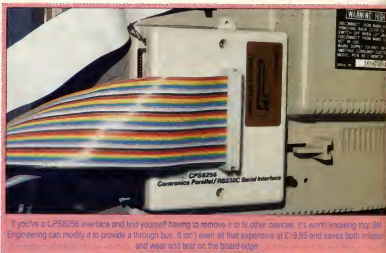
latter system is the world's first interactive program designed for the purpose.

The marlinising program asks various questions about engine choice, gearboxes and drive systems before printing out all the parts required. This includes everything down to the last hose clip and goes on to include the bin number of the part and current stock levels. Clearly the company would find it harder to run without having this program available.

The programs totalled 500k of Sharp Basic programs, about 100 sequential access files totalling 200k and two 100k random access files. All of this had to be transferred to the PCW. The problem was that the MZ80K only has a centronics printer port for communication with the outside world.

SM Engineering used one of their Parallel I/O modules to interface with the MZ80K's centronics port and also wrote (in Assembler) the necessary PCW software to fool the MZ80K into thinking it was talking to a printer instead of to another computer. The interface was able to provide all the handshaking signals that a printer would have provided while the software also looked after the creation of files for the incoming data, performed error checking and so on.

At the Sharp end, all that was needed was a program to print the Basic programs and the datafiles to the centronics



If you're a CP8256 interface and find yourself having to remove it to fit other devices, it's worth knowing that SM Engineering can modify it to provide a through bus. It isn't even all that expensive at £19.95 and saves both misuses and wear and tear on the board edges.

port, preceded by the file name required.

Once ported across, the Sharp Basic needed minor alterations to run under Mallard Basic, but Mark Bellamy had little problem with that. Lancing Marine now have their rather specialist, and vital, programs up and running on PCWs.

## PROJECT THREE Model business

Racing model cars is not just for kids. There are a huge number of devotees of model car racing and at European and world level it's taken very seriously indeed.

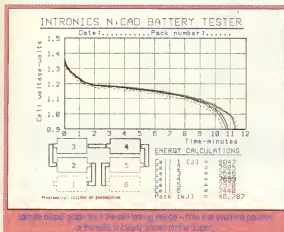
Intronics cater for this market, producing a range of electronic speed controllers and battery packs as well as offering support facilities to competition entrants.

At this level of competition, it is vitally important that the battery packs (consisting of six Ni-Cad rechargeable cells), which are used to power the cars, offer precise and consistent performance. Intronics needed some way to test the performance of individual cells *in situ* to be able to put together matched packs of cells for the cars.

The requirement was for SM Engineering to produce a system that would discharge the packs under controlled conditions, measuring the voltage across each one at predetermined time intervals. Once this was done, the system had to produce a graph of voltage against time.



One further detail was required to complete the analysis; the company needed to know the precise amount of energy delivered up by each cell. This information had to appear beneath the graph of output against time. Each pack could then be made up and checked for both balanced cells and total energy available.



The system had to be simple to use as well as providing several options. These included having graphs plotted separately or superimposed to highlight weak cells. Light emitting diodes were used to indicate which process was in operation; discharging, which takes approximately twelve minutes, was indicated by a flashing LED.

### Filling that gap

The system the company was looking for wasn't a new idea, similar systems were already available commercially; however, they either ran on BBCs, which Intronic didn't have, while others were too expensive or didn't have the facilities required. Since the company did have a PCW which was being severely underused, it made sense both to commission a project of their own and base it around the PCW.

The PCW was used during the development stages. Most of the programming for the project was done in Pascal with the code to control the plotter being written in Z80 assembler.

The hardware involved, apart from the PCW itself, consisted of the Parallel I/O Interface, an eight channel Analogue to Digital Converter and the I/O Test Module

## Home brew

Lately there has been an increasing amount of interest in the computer press concerning the automation of not just industrial processes but of the home you live in. Just how practical is this idea? Well, Stirling Moss, of racing fame, has been a technophile for more than twenty five years; he can run a bath, program his video and even pull the curtains in his house from anywhere in the world.

Not only is his house fully automated and programmable but it's on line too! Several companies have actually built these homes of the future - as they see them - with a view to making the technology both simple to manufacture and cheap enough to appeal to a mass market. Certainly the technical problems are all but solved.

A PCW is a more than powerful enough to run a home. The problems have been twofold; the first is in making the motors, actuators, and other devices that actually do the physical work both reliable and nonintrusive - this has largely been done. The second problem is more intractable.

To illustrate the second problem ask the various members of your family to set the video to record a program at 7.45 pm next Thursday, and see how long it takes to get it right. Do you have a digital watch? Can you actually make all the functions it boasts work? The problem is the man machine interface.

For the automated house to work properly - and be usable, people have to be able to shout at the microwave as they leave the house, 'Don't forget to start the Mousaka at seven', and have the microwave reply. It's this need for a human interface (one that humans will actually use instead of avoiding) that constitutes the stumbling block in home automation.

So while the PCW is more than powerful enough to control your home, it takes the kind of computing power used by military defence systems to process speech and second guess people's real intentions from their actual words. As for building in any kind of visual recognition system, there's still a long way to go on that front; so much, in fact, that many researchers feel a completely different kind of computer is needed for the task.

(this was needed to set particular lines and to provide visual indication that things were working properly. It was later replaced with a purpose-built board).

A four colour Tandy plotter (discontinued) was used to begin with but eventually SM Engineering developed their own using off-the-shelf mechanisms and circuit boards.

Once it was proved that the whole thing worked properly, they began thinking about producing a tidier device running from a Single Board Controller more suited to a factory environment (already, once the program is loaded, control is from the switchboard and the PCW is unused).

### PCW on a board

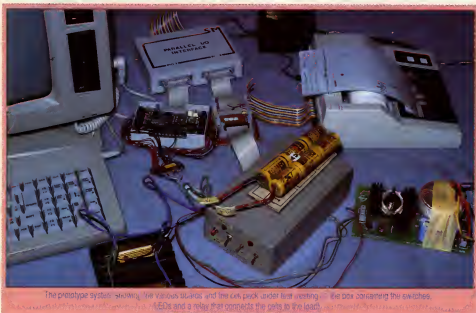
It's a long time since we mentioned the Single Board Controller. Basically it is a printed circuit board with a Z80, some RAM (required and an EPROM to hold a programme. It has an edge connector identical to that on the back of the PCW. Once a control program has been developed the SBC and an EPROM can replace the PCW.

## Chips with everything

Machines like videos are controlled by a microprocessor chip called a Single Board Controller. These chips contain not only the control circuits but also the program to run on them. Whenever the chip receives power it begins to run the built-in program automatically - you never have to load it in.

This is why you never notice these kind of computers as they go about their work in your programmable oven, your car, washing machine and a variety of other domestic equipment. In fact there are two of them in the PCW itself, one to control the printer and the other built into the keyboard.

The problem with these single chip controllers is that they are expensive to produce initially. To buy them cheap, they have to be ordered in thousands; all very well if you're planning to sell two hundred thousand units but not very practical for a one-off industrial controller.



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# WHAT DO YOU THINK?

An expert himself, John Connell explains how the PCW can learn to think like him

**What you really want is to add an outside tap to your plumbing system so that you won't spray water all over the kitchen when you connect the hose pipe to clean the car. Being keen on DIY you want to do it yourself. A plumber could tell you how but won't; what you need is a program that knows everything the plumber knows but doesn't charge £25 an hour to talk to you.**

**S**ome workers in the field of Artificial Intelligence prefer to call such programs Decision Support Systems since even the most powerful ones rarely offer cut-and-dried solutions which are 100% dependable. In this respect, they merely reflect the caution and fallibility of the human experts who were consulted in the creation of the program. Such systems tend to qualify their responses with percentage loadings: the greater the loading, the more certain the solution.

Today many powerful and complex expert systems (we will stick with the most common nomenclature for the moment) can be found operating in a variety of technical and professional fields. Medical diagnosis, genetic experimentation, judicial sentencing, oil exploration, car design, molecular biology, criminal investigation, and many more, have all benefited from the introduction of expert systems.

There are three principal components of an expert system. The Inference Engine is the part that does all the hard work: it sorts out the relationships between bits of information so that it can come to a conclusion. The Interface is the part that you, the user, sees: it asks you questions and your answers provide the inference engine with the information it needs. The Knowledge Base is the fund of knowledge upon which the inference engine can call in order to make sense of the information given to it by the user.

## No politics or religion

To understand what an expert system is and how it might work, we must first take some time to consider what knowledge is. Knowledge is not a mere collection of facts (whatever 'facts' might be); nor is it merely a synonym for information; rather knowledge implies, at the very least, the ability to map the connections between individual bits of information,

to recognize and utilize the relationships between them.

Let us, for instance, take some facts about a hypothetical person: he thinks of himself as middle-class, left-of-centre in his politics, prefers to read hard news as opposed to salacious gossip in his daily paper. It is possible to look upon these, rather simplistically, as a series of unrelated items. Yet, when you walk into your newsagent in the morning, a relationship develops amongst these items that determines that he buys *The Guardian*.

Your personal store of knowledge, therefore, is greater than the sum of its parts, the parts being the vast array of data, facts and information which rolls around in your head. The 'glue' which sticks all these items together is what turns them into knowledge.

So far so good. But an understanding of knowledge is not enough in itself. We have to take a (very large) step forward and find some way of representing knowledge so that it can be understood by a computer.

A number of methods of representing knowledge have been developed over the years, some more appropriate to certain types of knowledge than others. The most tried-and-tested method is one that uses something called first-order logic (or, more precisely, first-order predicate calculus). This system was invented by a German mathematician, Gottlob Frege, who died in 1972.

## Frock horror probe

In AI, Frege's system has been refined somewhat and uses what is generally termed the If...Then Rule. If we look again at the example mentioned already, we can set it out thus:

IF you are middle-class,  
AND IF you vote Labour,  
AND IF you would rather read about

the constitutional role of the monarchy than read about the colour of Di's latest party frock, THEN you will buy *The Guardian*.

If the third item was reversed (you love reading about Di's frocks), then the conclusion would be different. You might buy *The Mirror* instead. Basically, therefore, any field of knowledge that can be codified in terms of If...Then Rules can theoretically be encapsulated in an expert system. But between theory and practice lies a huge gulf, because, in real life it is often immensely difficult to break knowledge down into manageable and identifiable chunks. Even human experts find this difficult.

This difficulty has meant the development of a whole new field of AI known as Knowledge Engineering. A knowledge engineer is someone whose task it is to elicit knowledge from an expert in a form that can be translated into formal logic or into one of the many other ways of representing knowledge. Often an expert 'knows' the solution to a problem, but finds it immensely difficult to explain how he or she reached that solution. A knowledge engineer will dig deep with pertinent questions to try and force the reasoning involved to the surface.

## Riddle me this

Writing an expert system of your own is perfectly feasible. Although just about any language can be used for this purpose, a number of programming languages are particularly suited to such a task. The best for an expert system using formal logic is undoubtedly PROLOG, since it is itself based on predicate calculus. Next best is possibly LISP, the original AI language. You will find versions of these advertised for the PCW in this very magazine, including Public Domain versions.

## Expert testimony

An expert is someone who is specially skilled or knowledgeable in any area of human endeavour. An Expert System is a computer program which attempts to encapsulate a particular area of expertise, to be used either by people who are not themselves experts or by skilled people to augment and reinforce their decision-making.

## Bigheads

The biggest and most useful expert systems require the processing power of mini and mainframe computers to cope with the hundreds or thousands of rules and relationships in their knowledge bases. The most powerful micros are now edging into this kind of league too. The humble PCWs can really only scratch the surface of this field of Artificial Intelligence. But it is a surface worth scratching.

Two different expert systems are available for the PCW. The Wise One, £34.95, from Swallowsoft, PO Box 107, Walton on Thames, Surrey, KT12 5PQ, and Expert 86 which is shareware and can be bought from Prospeg, PO Box 28, Beeston, Nottingham, NG8 1PH. This costs £4 to try and if you register (about £20) they send you the manual.



However, if LISP can be used to write expert systems, then so too can Logo (note the If...Then Rule), since it is a simplified derivative of LISP. If you have not already done so create a Logo turnkey disc (see issue 33). Load Logo, type ed <ENTER> and you are ready to start programming. You leave the editor with <EXIT>.

To continue the newspaper theme, let us create a decision support system for visitors to Britain wishing to buy a daily newspaper, the kind of thing that might be made available in a hotel

## NEWSPAPER PROGRAM

```
to paper?
  ct
  class?
  politics?
  reading?
  decision?
  again?
  end
  to class?
    ct
    pr [To which social class do you belong? - working, middle or upper (w, m or u)]
    make "response rc
    if :response = "w [make "profile "w stop]
    if :response = "m [make "profile "m stop]
    if :response = "u [make "profile "u stop]
    class?
    end
    to politics?
      ct
      pr [Where do your political beliefs lie? left, centre or right (l, c or r)]
      make "response rc
      if :response = "l [make "profile (lput "l:profile) stop]
      if :response = "c [make "profile (lput "c:profile) stop]
      if :response = "r [make "profile (lput "r:profile) stop]
      politics?
      end
      to reading?
        ct
        pr [What do you like to read in a paper? - hard news or gossip (n or g)]
        make "response rc
        if :response = "n [make "profile (lput "n:profile) stop]
        if :response = "g [make "profile (lput "g:profile) stop]
        reading?
        end
        to decision?
          ct
          if :profile = "wln [pr [Try the Morning Star or Guardian]]
          if :profile = "wlg [pr [Try the Daily Mirror]]
          if :profile = "wcn [pr [Try the Independent or Guardian]]
          if :profile = "wec [pr [Try the Daily Mirror or Express]]
          if :profile = "wrn [pr [Try the Telegraph]]
          if :profile = "wrg [pr [Try the Sun]]
          if :profile = "mgn [pr [Try the Guardian]]
          if :profile = "mlg [pr [Try the Daily Mirror]]
          if :profile = "mcn [pr [Try the Independent]]
          if :profile = "meg [pr [Try the Express]]
          if :profile = "mrn [pr [Try the Telegraph or Times]]
          if :profile = "mrg [pr [Try the Daily Mail]]
          if :profile = "nln [pr [Try the Guardian]]
          if :profile = "ncn [pr [Try the Independent]]
          if :profile = "nlg [pr [Try the Express]]
          if :profile = "nrg [pr [Try the Telegraph or Times]]
          if :profile = "urg [pr [Try the Daily Mail]]
          end
          again?
          pr [Another try? y or n]
          make "response rc
          if :response = "y [paper?] [ct stop]
          end
```

lobby. Our program will ask them a few simple questions, and on the basis of their answers, will recommend a paper or papers. To keep the program short, the questions will be simplistic in the extreme, but at least the

principles will be illustrated. You can, of course, extend or amend the program as you please.

1. Are you working, middle or upper class?
2. Are you left, centre or right in your politics?
3. Do you prefer hard news or salacious gossip?

Your responses will lead to a recommendation of one or two from a list of ten daily newspapers.

## Read all about it

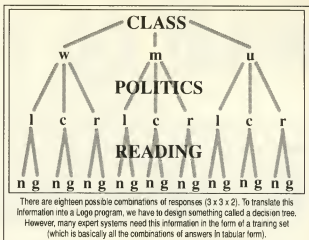
Above is the resulting decision tree. At each node (a point where the tree either branches or terminates) is the initial letter of the response appropriate to that node. Thus, at the first level, w = working class, m = middle class and u = upper class. At the next level, l = left wing, c = centrist and r = right wing. At the lowest level, n = news and g = gossip.

If you follow a path down through a set of responses, you will 'collect' a unique triplet of initial letters. For example, the hypothetical person looked at earlier will collect the letters M, and L and N, which lead inexorably to The Guardian.

As with last month's poetry program, this month's program has a main procedure, called **paper?** which is very simple. It has five sub-procedures: **class?**, **politics?** and **reading?**. Ask the questions and build up the variable. **Class?** attaches w or m or u to "profile. **politics?** and **reading?** attaches, first, l or c or r, and then n or g.

These last two procedures have to add their letters onto the end of the variable. They do this with the Logo primitive **lput** (short for last-put) which adds the first object following it onto the end of the second object following it.

The function **decision** does what its name implies: depending on the three letter combination achieved it prints out a recommendation for



suitable reading. (And don't take the recommendations too seriously, it's intended to be fun - Ed).

## Conversion facility

Finally, **again?** asks the user if he or she would like another go (after all, you could be upwardly mobile) and responds accordingly. It might help to look at particular aspects of the program's operation.

Each of the three 'question' procedures is basically identical in form. First, they clear the screen with **ct** (clear-text) and print the relevant question. Each then uses the function **rc** (read-character?) to wait until a key is pressed by the user, the possible keys being, of course, the initial letters of the available responses.

In each of these three procedures, error-handling is carried out by a simple piece of recursion. In other words, if you press a key which does not correspond to a correct letter in response to a question, the last line (before end) simply calls the same procedure once more. The procedure will only move on to the next stage when an available key is pressed.

Finally, **again?** gives a clear demonstration of how 'if' works in Logo. If the given condition is True (in this case, if the 'y' key is pressed) then the first list of instructions is executed; if the condition is False, the second list is executed. If, as in the other procedures, there is only one list of instructions after 'if', then the list is executed if the condition is True and the next line is executed if the condition is False.

You now have a model for a simple expert system written, in this case, in Logo, but capable of being used with any language. Why not have a go at building your own? You never know, if you come up with the definitive expert system in rose-growing or washing-machine maintenance or whatever, there might be a fortune awaiting you in the market-place. ■

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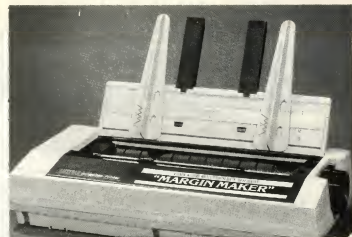
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# DIVIDE AND CONQUER

Like Chess, programming can be a satisfying intellectual challenge. Geoffrey Childs, author of *Lightning Basic*, explains the fundamental principles

Is everybody capable of becoming a competent programmer? Bluntly, no! Yet many people, who have the ability to program a computer, imagine that it will be so difficult that they never try to do it! Not everybody can become a competent musician, writer or driver. Certain skills and aptitudes are needed. The same is true of programming. So can YOU become a programmer?

You have already passed the first test! If you are reading this magazine, you must enjoy working with computers. That's important.

The second point is that you must relish a challenge. Any program that anyone writes has germinated from an idea. The idea has grown into a plan. The plan has been tried and tested. The concept works and the challenge has been met successfully.

The third and last qualification is that to a greater or lesser degree you must have a logical mind. It is a fallacy that you must be a mathematician – although it has to be said that fluency with figures is a great aid to a programmer. What is needed is the ability to tackle a large and complex problem by breaking it down into a series of smaller and simpler problems. It is true that this is the way a mathematician works, but it is also true of a linguist, or in a much more everyday way, it is true of anybody who writes a clear and well-expressed letter.

The aim of this series is to make you think like a programmer. It is not going to consist of a dictionary of Basic keywords, although it is certainly hoped you will extend your knowledge of the language. (Much of what is said will apply equally well to languages other than Basic, but for fairly obvious reasons we must choose a language for the examples, and Basic is available to all PCW owners). If you want a dictionary, read the manual – despite the belief that this is only the last resort of the desperate!

We shall not be giving you a list of programming manoeuvres to make you into a whizz kid with machine code. That's not to say, of course, that you won't find some use for the better tricks revealed. Mind you, you may be able to pinch a few of my better tricks – I probably won't be able to resist pointing them out.

## Down to earth

In this first article, we shall look at a fairly simple little program from the point of view of the programmer. In subsequent articles we shall construct a much larger and more useful program together. We shall approach it stage by stage, discussing generalities and applying them to the program under construction. Our program will be called BRITMAP, but don't ask me any more yet...

The construction of a program breaks down to six stages: PLANNING, GROUNDWORK, INPUT, PROCESSING, OUTPUT, FRILLS. Most beginners think that writing a program only consists of the fourth stage, processing. With experience, you will realise that often this can actually be the simplest of all the stages, particularly if you have taken care with the first three stages.

Other programmers might well give a different list of headings, though I think most of them would accept that most of their work could be categorised in the way I have

suggested. There are two headings that I may appear to have omitted. DEBUGGING and TESTING. Both debugging and testing are a vital and time consuming part of the construction of all programs. They will usually be a part of all the stages I have mentioned above.

This brings us to an important principle. When you have written a single stage or subroutine in a program, test it and make sure that it works correctly before you go on to the next part of the program. In this way you won't lose sight of the wood for the trees. You will also find that your program comes nearer to meeting the academics' seal of approval – a STRUCTURED program.

Without more ado, let's use these headings to write this month's little program together. The aim of the program is simple. You tell the PCW the date on which you were born. In return the PCW will tell you the day of the week in which you were born.

## PLANNING

First of all, we can consider the general algorithm. This is just a rough word for the method of procedure. With due apologies to all the ninety year old readers of 8000 Plus, we will consider only birthdays during this century. We shall then convert the input date into days after 31st December 1899. Then we can divide by 7 and take the remainder. Each remainder will correspond to one day of the week. Let's assume that 31st December 1899 was a Sunday. If it wasn't, we'll find out later and be able to make an adjustment.

## Which disc?

Do you ever want to know which disc you are using? Of course you don't, you know already. If you are programming for other users, you may want to know which disc they are using. If so, PEEK(64474) will give you the information. It will return 0 for the A disc, 1 for the B disc and 12 for the M disc. Why 12? Work it out, and you might qualify for the Brain of Britain competition! PEEK(65414) may also be useful. If it is 0 you are using an 8256. If it is 2 you have all the 512k (either an 8512 or 9512).

## He does it his way

Programming is an individual matter. If you don't feel comfortable with the way your author or anybody else does something, don't do it that way, do it your way. Perhaps you will later come round to the conventional way of thinking – and perhaps you won't. I break a lot of the old rules, possibly not as many as I did at one time! Here is a list of some of the comments that I often break:

- 1/ Thou shalt write thy programs on paper before typing into the computer.
- 2/ Thou shalt not use an unconditional GOTO.
- 3/ Thou shalt use lots of REMs.
- 4/ Thou shalt think in HEX to write machine code.
- 5/ Thou shalt use an Assembler to write LIGHTNING Basic.
- 6/ Thou shalt never write spaghetti.

Now let's look at the problematic parts of this. Input of the month could be harder than the rest of the program, since it is friendly to allow entry by number or word. We shall have to be rather careful about leap years, but we can take that as it comes.

## GROUNDWORK

This consists of writing subroutines, dimensioning arrays and usually putting in some general purpose

## Date Program

```

10 DIM m(12): m$(12) = " "
20 DATA 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31
30 DATA JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
40 DATA Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
50 FOR n=1 TO 12: READ m(n): NEXT
60 FOR n=1 TO 12: READ m$(n): NEXT
70 FOR n=0 TO 6: READ d$(n): NEXT

```

In line 10, the arrays are DIMENSIONED to the number of different variables each will contain. The DATA lines contain the information and this is READ into the array variables, so that, for instance, m(4) will be 30 and m\$(4) will be APR (since April has 30 days). The last array goes from 0-6 rather than 1-7 to correspond with remainders after division by 7.

```

80 PRINT CHR$(27) "T" CHR$(27) "Please enter the date of birth:
90 PRINT: INPUT "Enter the day of the month in figures: ", d$
100 IF d$ < 1 OR d$ > 31 THEN GOTO 90

```

Clear the screen, and get the day entry. Is it sensible? If not, try again!

```

110 PRINT: GOSUB 800

```

And the month, and next the year.

```

120 PRINT: INPUT "Enter the year (you may leave out 19): ", y$
130 y$ = y$ / 100: k = y$ * 365 + INT(y$ / 4)

```

MOD divides by 100 and gives the remainder. Variable k is the day counter. Multiply years by 365, and find how many leap years since 1900 by dividing the years by 4 and adding to the total.

```

140 IF m < 3 AND y$ / 4 = INT(y$ / 4) AND y$ THEN k = k + 1

```

This line checks for a birthday that happens in a leap year before March 1st. AND y\$ THEN may look strange, but it really means AND y\$ < 0 THEN.

```

150 FOR n=0 TO m-1: k = k + m(n): NEXT

```

Add on the days in the month up to the previous month.

```

160 k = k + d$: j = INT(k / 7): k = k - 7 * j

```

Add the days and divide by 7. We can't use MOD since the total days could be over 32767.

```

170 PRINT: PRINT "Day of birth was ", d$(k)
180 PRINT: PRINT "Another one? Please answer Y or N"
190 s$ = UPPER$(INPUT$(1)): i = INSTR("YyNn", s$): ON i+1 GOTO 190, 80, END

```

Line 190 demonstrates a neat way to take a direction prompt. INPUT\$(1) is usually shorter than INKEY\$. INSTR is a quick way to convert a letter (or a failure) into a number, and ON GOTO sorts the programming men from the boys.

```

800 INPUT "Enter the month: ", m$: m$ = INT(VAL(m$))

```

The input is a string which is turned into a number if possible.

```

810 IF m > 0 AND m < 13 THEN RETURN
820 IF m < 0 THEN 800

```

If we have no joy, we see whether a suitable word input has been given.

```

830 IF LEN(m$) > 3 THEN m$ = LEFT$(m$, 3)

```

The input is truncated to 3 letters and turned into capitals and compared.

```

840 FOR n=1 TO 12: IF UPPER$(m$) = m$(n) THEN mon =
850 NEXT: IF mon > 0 THEN GOTO 800: ELSE RETURN 5 + INT(y$ / 4)

```

MOD divides by 100 and gives the remainder. Variable k is the day count

bits of code such as escape sequences. In this case the program will probably run better if we give it the information about names of months (three letters will do), lengths of months, and days of the week. You couldn't have simpler arrays to write. Note that while the month arrays are better if you go from 1-12, the days of the week are better from 0-6. Why? Well, we've thought ahead and realise that remainders when dividing by 7 go from ... 0-6.

Having sorted the arrays, we tackle the 'worst' part of the program. We put it in a subroutine, so that we won't have to worry about it later. The input of the month is initially a string variable. If VAL will convert it into a number between 1 and 12 that's OK. If not, we test whether it corresponds to one of the months. For MARCH we accept 3, March, march or MAR. We don't accept MA, for instance - it could mean May. The subroutine is placed well out of the way of the program (starting at line 800 in this case). You can RENUM later, although it's not always advisable. Sometimes it is better to stick with the original numbering as it makes it easier to debug if you have to come back to the program.

### INPUT

We've already sorted out the month problem, but we have to enter days and years. It is reasonable to accept 61 or 1961 (a good year for Burgundy). Using MOD sorts this out. (By the way, be careful of MOD, it only works if the numbers are less than 32768). We make a modest check for day entry. A common mistake would be to enter 233 when 23 was intended. If we get an entry of September 31st 1994, well... the user wouldn't know the difference between Monday and Friday.

### PROCESSING

Not much to it. Years multiplied by 365, add on days, add months by looping through the days in the month array. Add on the year divided by 4 to account for leap years. We have to watch this carefully. Those born in a leap year before February 29th must have one day subtracted - except... 1900 wasn't a leap year.

### OUTPUT

The output is easy, but now we check to-day's date. If it is wrong, we will have to make an adjustment. 6-1 chances do come off, even at the races. It does here. 31st December 1899 WAS a Sunday.

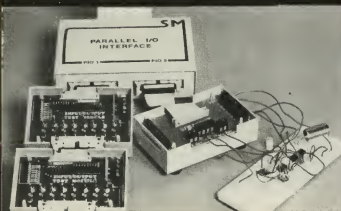
### FRILLS

There are not that many that you can add to a program as simple as this. But we might add an option for an action replay. Or we could add a 'horroroscope' - Monday's child is fair of face and so on. We might even add more thorough input checks. At least, you might. I've had enough of that program.

## Geoffrey Childs himself

Cambridge graduate (1960). Studied bridge, but took Maths exam. Taught Maths and played stock market gently for about 25 years. Latter successful, no longer teaching. Violently anti-computers, most of this time. Conversion nearly as sudden as St Paul's. Summers are spent watching cricket, winters pottering about with computers. Software writer for Sharps and Einsteins, but bought a PCW on the strength of buying Amstrad shares at the equivalent of 14p. Now use PCW almost exclusively. Currently a consultant partner at David Wilson Computronics. Have recently written book, soon to be published, and probably entitled 'PCW: Streamlined Basic.' Best known program: Lightening Basic. Favourite program: usually the one I finished yesterday! Most hated program: the latest brand new super version LocoScript 2.79134567 - it means I will probably have to dig out Fonts and rewrite it.

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This is the sort of book you'll wonder how you ever managed without once it's sitting pretty on your bookshelf somewhere in the vicinity of your PCW. It's packed with all those snippets of information that, until now, have been hidden well away in the murky inner recesses of various inhosptable manuals, guides and text-books. The Penfolds have now pooled them into one easy to dip in and out of handbook.

There are eight chapters in all, each one concentrating on some particular topic that is common to most – if not, all – levels of computing interest. The most lengthy of the chapters (the first one) is devoted exclusively to popular microprocessors, and covers chips as varied as the familiar Z80 (the chip in the PCW) to the INMOS Transputer. The handbook then goes on to take a very detailed look at interfaces, numbering systems (binary numbers, signed binary, ones complement, two complement and so on), and computer graphics – to name but a few.

The eighth and final chapter deals solely with MIDI (Musical Instrument Digital Interface) technicalities, interestingly enough, and is guaranteed to answer virtually any questions that you might have about it.

The going occasionally gets tough when the book resorts to dense passages of heavy 'technospeak'; on the other hand, anyone who is reading the book to find out more about Register Indirect Addressing, for example, will presumably be sufficiently well-acquainted with the relevant terminology to follow what's being said anyway.

The Handbook is liberally sprinkled with diagrams and photographs (all of them black and white), which provide a much-needed visual aid to the various explanations. It's unfortunate that some of the screenshots that have been reproduced in the Computer Graphics chapter (Chapter 6) are quite grainy. At times, it feels a bit like having to watch the latest developments in your favourite film through a really bad snow storm. However, since at no point do the Penfolds call your attention to specific details on the screens, your basic understanding of what's going on is never drastically impaired.

Not only is the Computer Hobbyists' Handbook informative and advisory, the Penfolds have also managed to work a good historical perspective into it. This is especially true of the microprocessor and computer graphics chapters, where, to a certain extent, the way things were has a direct bearing on the way things are and will be.

The book concludes with a number of interesting and useful appendices which highlight some of the topics covered earlier; there is, for example, an easy to glance at ASCII table and a list of Epson standard printer controls. There's also a Decimal/Binary/Hex conversion chart and a list of abbreviations.

At only £5.95, this book is a bargain, and whether you're interested in your computer *per se*, or regard it merely as a box of wires that can perform the occasional useful trick, this is one for you.

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# BOOK LOOK

Two handbooks for the amateur and the professional; Sharon Bradley flicks through the pages ...

## COMMUNICATIONS AND NETWORKS

by Phil Croucher

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This one's pretty good value for money when you realise that you're effectively getting two books in one. Both sections of the book are complete in themselves, although the second part (on Networks) will, to a certain extent, draw on knowledge acquired during the first half.

The first half of the book covers almost everything that you're ever likely to need to know about comms – from explanations of the fundamental premises involved in computer talking unto computer (Open Systems Interconnection) to the different types of software required for the job. Some of Croucher's analogies verge on the opaque in these early chapters of the book; at times you're left with the distinct impression that he's just shot himself in the foot. His company hierarchy illustration of the data communications process is a prime example.

On the other hand, his section on serial communications – and modems in particular – is very useful for anyone thinking of emerging from their computer isolation. The best way, of course, is to do your own field trials, but where that's not possible, you could do worse than to consult his summary of the factors to bear in mind when you're making your choice of modem – compatibility and ability to handle line-noise being just two of them. He then goes on to outline the optional extras that you can expect to find on some modems and demystifies the puzzling flashing light syndrome that's common to most modems.

His troubleshooting section at the end of the Serial Communications chapter is again very useful, but could have been managed more methodically. As it is, it's a lump of text with nothing highlighted or picked out – consequently, you have to scan the whole lot to find out if you're particular fault is there or not.

The Networks half of the book fills a more advisory role. After all, when you consider that making the decision to network your computer system is as significant as getting computerised in the first place, it pays to get it right. In other words, there's no point doing it just for the sake of it. Croucher tells you why you should be considering it, and shows you how to balance the costs likely to be incurred with the benefits to be gained.

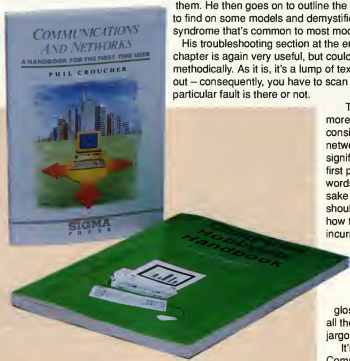
As in the earlier half of the book, he includes a hard- and software product overview and a checklist for shoppers.

There's a very comprehensive glossary at the back which includes all the technical terminology and jargon included throughout the book.

It's probably fair to say that Communications and Networking could have benefited from a few more diagrams and pictures to lighten the load and back up the text. There's no doubt

that it's an informative read; it's also quite a stodgy one which inclines us to think that it's not a book you're going to pick up and read through sheer love of the subject. Used purely as a reference book, however, it will probably do very well.

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# FIZZ! BUZZ!

What ghastly, warping childhood experiences could make someone grow up to be a freelance futurologist and software knowall? Revelation came to me at a computer show where I'd arranged a second mortgage to buy a drink. It tasted awful, and I thought of when a pint almost as bad cost me exactly one-twentieth as much.

This thrifty fud was some foul fizz served in South Wales pothouses to schoolboys of limited taste. My teenage memories started trickling back. Proust sailed into the wastes of lost time at the remembered nibble of a biscuit, but I was made of sterner stuff. The remembered tang of iron fillings....

Participants in those smoky pub sessions were thrown together by friendship, throbbing absence of girlfriends, and the natural human urge not to be doing homework. It was my evil pal Dai who enlivened the evenings with the direly hazardous game Fizz-Buzz.

If you're lucky, you won't have met it. Semi-drunken clowns sit in a circle, counting aloud, clockwise round the ring: "One." "Two." "Three." At five, and every multiple of five, the current sucker must instead cry "Fizz!" At seven and its multiples, the word is "Buzz!" and the order of play reverses direction. Anyone failing to make the right noise at the right time must take a huge swig of beer (amateur rules), drain the glass and buy another (tournament rules), or knock back all visible drinks and buy a round (insane idiot rules).

Well, it beat South Wales's other conversational topics: women (frustrating since none of us knew any) and rugby — even more frustrating since, precociously beer-raddled, we couldn't play the national game without wheezing and falling over. This has been a health warning.

There was a weird satisfaction in doing this daft business right, "the solemn intoxication which comes of intricate ritual faultlessly performed" (thus Dorothy Sayers on bell-ringing) — except that the ritual wasn't "that" intricate. Even the double thrill of "Fizz Buzz!" at multiples of 35 failed to reach orgasm level.

Clearly the "game" lacked intellectual challenge, at least until

so late in the evening that remembering one's name also began to present difficulties on the order of Fermat's Last Theorem. We tried attaching electrodes to the sluggish rules. An early experiment was to assign "Oink!" as the, er, buzzword for multiples of 3. Dai soon developed a particularly obscene "Oink!" whose mere enunciation counted as gamesmanship. The corpse of the rotten game began to twitch.

"Burp!" for multiples of 11 was the next logical addition. By now, some of us were sweating, concentrating intently, and falling over sooner than of yore (see above: Tournament Rules). Then came a quantum leap into genuine mathematical abstraction: "Clang!" each time the count reached a prime number. (After savage debate, the dogma of mathematics was cast aside and I was declared prime.) Around then I stopped remembering petty things like closing times or how I'd got home afterwards. Sanity finally died with the two-pronged introduction of "Pow!" for perfect squares and "Zap!" for powers of two. Was 1 a perfect square? (Oh, all right.) A power of two?

By now, alert readers will see, there were no blasted landmarks. Pale, strained faces ringed the table, struggling to follow a count which began not 1-2-3-4 but: "Clang Pow!" "Clang Zap!" "Oink Clang!" "Pow Zap!" It was a supreme moment of triumph if we successfully galloped into the straight with "Oink Buzz!" "Burp!" "Clang!" "Oink!" "Fizz Pow!" ...and, at last, the first number in our counting system which came through in clear.

"Twenty-six!"

I've never worked out what the pub regulars thought of us, but they used to look worried.

The suggestion of "Ping!" for cubes was perhaps unnecessary. Perfect numbers also received short shrift. The sessions ended after a serious plan to signal numbers in the Fibonacci series (1-1-2-3-5-8-13...) with, appropriately, "Argh!" Rather than debate whether 1 should now be intricately coded as "Argh Argh Clang Pow!" owing to its double appearance in the series, we all went to university instead.



A page in  
the company  
of author and  
PCW pundit  
David Langford

L  
A  
N  
G  
F  
O  
R  
D

In Oxford, many splendours and miseries followed, but the demented game wasn't so easily escaped — not merely because I inflicted it on precocious hackers who programmed the Nuclear Physics Department computers to list every response up to ten thousand. (When I write *Advanced Fizz-Buzz — the Dungeon Master's Guide*, I'll know where to do the research.) Those nonsense sequences were strangely hard to shake off. People have been driven round the twist by obsession with Charles Hinton's coloured cubes for visualizing the fourth dimension (1904). Not being quite intellectually up to that, I still suffered years of fizzes and oinks and clangs running round my head like mathematically-minded sirens.

(Also I invented variants like Real Men's Fizz-Buzz, played with all the real numbers between 0 and 1 with special grunts for transcendentals — you go first, thanks; Big Fizz-Buzz, in which

anyone reaching the first transfinite ordinal before closing time must intone "Someone's Been Cheating!"; and, after a crippling attack of Douglas Hofstadter... Self-Referential Fizz-Buzz incorporating Strange Loops.)

The sound effects in my skull did eventually fade, but as a possible side-effect I seem to have spent my working life doing vaguely mathematical and computerish things, from SF to doomsday-weapon simulations to making PCWs count words. Wasting time in pubs? I can almost truthfully say: "I owe my whole career to lousy bitter and Fizz-Buzz." Death comes on swift wings to anyone who responds, "What career?"

Admittedly, my failure to get rich by writing *The Hitch-Hiker's Guide to the Galaxy* can be blamed on schoolboy conditioning to think that, for the reasons above, 25 is an infinitely funnier punline than "Oink Buzz!". I mean, funnier than 42.... ■



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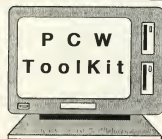
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# LISTINGS

The PCW ponders precise contours and scribes its findings to length

## SURFACES

by A M Baldwin

**M**athematics can be a thrill. All over the world pictures which seem to be purely art pour l'art are being created. Not by impoverished artists but by well-funded scientists with powerful computers. These pictures bring to life previously abstract mathematical concepts - for example, the dimensions of unseen stars and even the effects of entropy on the universe. Already with the Mandelbrot set exploration printed in issue 31, these pages have shown how the PCW can help you foray into these rarified realms.

A M Baldwin's Surfaces program follows on from this new tradition by creating visual images of such mathematical functions as  $5^x(x^y+y^x)+EXP(-x^y)$ .

It achieves this by using Larry Simon's Plot routine (which is included in the listing - so you've got it yet again), first printed in issue 23 (now sold out) and updated last month. The image produced consists of a series of graphs drawn one behind the other. The program then turns your PCW into a kind of roving microscope allowing you to view the image from some startling perspectives. For example you can look down from 'on high' or even delve around inside the shape. To do any of this you'll need to provide values for the variables listed below:

**FNz**: here the variable z represents the model function from which the drawing is taken. Changing the sign within the function changes the perspective. Signs such as COS or SIN will provide a wider view but some interesting distortions can also be obtained.

**ed**: this stands for Eye Distance. The greater

the value assigned to ed the further your 'eye' is from the image. This creates a smaller, less detailed picture on the screen. Setting ed at 100 will normally give a good overall view of any shape; you can then pick areas to examine more closely.

**sf**: this stands for Scaling Factor. A more apt description might be magnification.

The greater the value, the higher the magnification and the larger the image. A scaling factor of between 400 and 900 will produce reasonable detail, but as usual you should experiment.

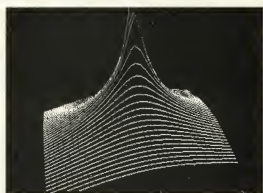
**st**: this stands for STEP and is used with the **FOR...NEXT** loops throughout the program. st actually provides the area to be magnified. Setting st at 0.1 will give a fairly clear image quickly. A setting of 0.5 combined with an ed setting of 100 should give a good general sketch. A small value for st gives a small area to be magnified.

**ax** and **az**: these give the angles from which you view the shape. ax gives the up (high value) and down (low value). ax=0 is directly 'above' the image while ax=90 is 'ground level'. az, on the other hand, rotates the image. az=90 views the image 'straight on'. Anything above 90, or the use of negative numbers, will produce very little on the screen.

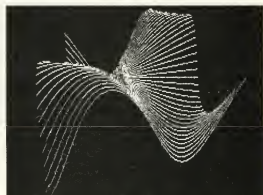
In order to change the values assigned to any of these variables you need to edit the relevant lines before running the program. You will probably find that this constant stopping and starting becomes a pain. A quick glance at the **INPUT** command in the Mallard Basic manual should provide you with a more convenient method of assigning values.

The program, as it stands, is an impressive piece of work. It makes

imaginative use of the Plot routine but it could always be modified. For example, might there be a way of having several shapes on the screen at once? Would it be possible to elongate or even crunch shapes? Why not try to answer these questions and when you've done that, send the solutions into us.



This was produced by the listing you are about to type in.



A few minor changes to the values of ed and ax/az will produce this 'wave form'.

```
10 DEF FNz=-LOG(SQR(x*x+y*y))
20 ed=10: sf=500: st=0.1: ax=60: az=70
30 e$=CHR$(27): c1$=e$+"E"+e$+"H": PRINT e$"f
40 PRINT c1$: DEFINT h-k: DIM h(720)
50 xc=360: yc=124: pi=3.14159: ax=ax*pi/180: az=az*pi/180
60 v1=-SIN(az)*2: v2=-COS(az)*COS(ax): v3=-COS(az)*SIN(ax)
70 v4=COS(az): v5=-SIN(az)*COS(ax): v6=-SIN(az)*SIN(ax)
80 v7=SIN(ax): v8=-COS(ax): POKE 441,0: GOSUB 270
90 FOR y=2 TO -2 STEP -1: flag=0
```

```
ODF7
EB13
OF20
OF41
17AB
19B2
1A51
155C
0EB8
```

The various variables are set up here. Line 40 converts the angles from degrees (which humans understand) into radians (for the computer).



# LISTINGS PLUS

```

100 FOR x=2 TO -2 STEP -.5:z=FNz
110 IF flag=0 THEN flag=1:GOSUB 250:GOTO 190
120 GOSUB 250
130 dy=sy-ty:dx=sx-tx:n=dy/dx:nx=SGN(dx):ny=SGN(dy)
140 IF ABS(n)>1 THEN n=1/n:GOTO 170
150 FOR tx=tx TO sx STEP nx:ty=ty+n*n
160 GOSUB 200:NEXT:GOTO 190
170 FOR ty=ty TO sy STEP ny:tx=tx+n*n
180 GOSUB 200:NEXT

```

0F5F  
14DE  
052D  
1CC1  
0EC6  
15FB  
0CC1  
1605  
083A

The flags noted in lines 90 and 110 stop the PCW from drawing the return lines over lines already drawn.

```

190 tx=sx:ty=sy:NEXT x,y:PRINT e$"e":END
200 a%=INT(tx):b%=INT(ty)
210 IF a%<0 OR a%>719 OR b%<0 OR b%>247 THEN 240
220 IF b%<h(a%) THEN 240
230 CALL plot(a%,b%):h(a%)=b%
240 RETURN
250 ex=x*v1+y*v4:ey=x*v2+y*v5+z*v7:ez=x*v3+y*v6+z*v8+ed
260 sx=ex*sf/ez+xc:sy=ey*sf/ez+yc:RETURN
270 MEMORY &HFFFF:plot=&HC000:a=plot:e=0
280 RESTORE 400
290 FOR f=0 TO 14

```

15D8  
0B63  
11D4  
07FD  
0BA2  
0507  
1C08  
16C8  
1496  
06D9  
0722

This section compares the values raised throughout the program to the boundaries of the screen. Numbers which go above screen limits are rounded down.

```

300 s=0
310 FOR g=0 TO 7
320 READ x$:x=VAL("&H"+x$)
330 s=s+x:POKE a,x:a=a+1:NEXT
340 READ x$
350 IF s<>VAL("&H"+x$) THEN e=e+1:PRINT "Error in Line";10*(f+40)
360 NEXT
370 IF e=0 THEN RETURN
380 PRINT e;"ERROR";:IF e=1 THEN PRINT ELSE PRINT "s"
390 STOP

```

02B3  
06A5  
0A03  
1055  
0401  
1C03  
0428  
0ADD  
19C7  
0461

Here the program reads the DATA lines which follow. Line 350 is an aid to debugging and informs you if you have made a mistake typing the DATA in.

```

400 DATA 0a,32,7c,c0,4e,23,46,21,250
410 DATA cf,02,a7,ed,42,d8,ed,43,4af
420 DATA 78,c0,eb,5e,23,56,7a,a7,41b
430 DATA c0,93,3d,5f,ed,53,7a,c0,469
440 DATA f3,ed,73,7d,c0,31,9d,c0,51e
450 DATA 01,36,c0,cd,5a,fc,e9,00,403
460 DATA ed,7b,7d,c0,fb,c9,2a,7a,50d
470 DATA c0,29,11,00,b6,19,5e,23,24a
480 DATA 56,7b,e6,f8,cb,27,cb,12,47e
490 DATA 47,7b,e6,07,b0,5f,2a,78,360
500 DATA c0,45,7d,e6,f8,6f,eb,19,4d3
510 DATA 78,e6,07,3c,47,af,37,1f,2ed
520 DATA 10,fd,47,3a,7c,c0,a7,20,391
530 DATA 05,78,2f,a6,77,c9,3d,78,347
540 DATA 20,03,b6,77,c9,ae,77,c9,407

```

0B8A  
0B06  
0CF8  
0D2A  
0DEA  
0CFB  
0E03  
0CF8  
0DF5  
0CDB  
0DD0  
0B89  
0CD6  
0CBD  
0C86

As always with programs which draw on the PCW screen there have to be DATA lines. These actually produce the Plot routine for Surface Gas.

# EXCOUNT

by Rev S J Coombs

A word counter and much more. Many PCW owners buy their machines in order to publish local news sheets, magazines or leaflets. Laying out pages using the many desktop publishing tools available can be a difficult enough task. It is made all the more so when you discover that you have written 'over length' and your text falls off the bottom of the page.

Reverend Coombs' Excount program provides a fairly neat way around this problem. Excount will tell you the number of column centimetres and column lines a block of text will fill.

The program requires you to have created a plain text file saved in Ascii form; make sure to save it in group 0 if you are using LocoScript.

You are then prompted to tell the program how many characters you require per line. The term 'character' in this sense includes spaces and all punctuation. The number of characters used in the average line in these Listings pages is around 50. As the program cannot cope with proportional spacing the best thing to do is

## How to Type in a Listing.

First get Mallard Basic running. To do this take your CP/M disc - not the Master disc, but a copy - and type BASIC at the A> prompt.

BASIC has been loaded when the A> disappears and is replaced by ok. Now you're ready to type the listings as they appear line by line except for the four figure hex numbers which appear at the end of each line; these are check digits.

When you've finished typing a line, check it for typing errors. When you're certain everything is correct, press [RETURN]. If, before this, you find a mistake, then cursor back to it and make the correction. Once you're happy go on to the next line.

If you spot an error after you've moved on, you can type `END` followed by the line number. Edit the

line using the cursor keys and make changes using [DEL]. Press [RETURN] and the line will be accepted in the corrected form.

When you've finished typing the program you should type `LIST`. This will print the listing on the screen. If you want a printout type `LISTS`. Now, think up a file name such as "a:\boatprog". Don't worry about using \ as after it. The name should be no longer than eight letters. To save your program type `SAVE` followed by the filename you chose.

The next thing to do is type `END`. If the program runs first time you're in luck. If not, don't worry, it happens to us all. Basic will probably give you an error message with a line number. This might not be the exact line but it will narrow down the search. If all else fails.....read the manual.

provide an approximate figure and go on from there. Next you are asked for the number of lines you will require to fit in a centimetre. These pages have roughly three.

These are the only two pieces of information you need to provide before Excount goes to its text. This is carried out within the WHILE..WEND loop starting at line 170 and ending with line 190. What the program is actually doing here is to run the text file,

character by character, through the loop. On each pass the characters are scanned. This can be a slow process, about a minute per 100 words, so it is advisable to break up the text files into chunks of maybe 600-700 words a time.

Line 230 looks for spaces (represented by CHR\$(32) in Ascii). If the character is a space it is counted but not included in the word count; the next character is then loaded from the file.

Line 240 makes sure that the program does not count any of the control codes which occur prior to CHR\$(32).

Once all this has been done the results are output to the screen. Not only are you informed of the number of centimetres and lines which your file will fill but also the number of characters and words it contains. When all this has been finished you can compare the findings to your page and tailor the text to perfection.

Excount is a cleanly laid out program which does its job with a minimum of fuss. However, modifications can be made; for example, you could provide a printout, you might like to check for specific characters such as question marks or brackets, you could even produce a low level style checker by loading the text file slightly differently. If ideas occur, use them.

```
WARNING! This program takes about 60 secs./100 words.
All results are approximate.
So be patient and don't panic!
```

```
PROCESSING FILENAME: MUMU.MOD
```

```
Size Check Of File: MUMU.MOD
Number of Column Centimetres = 41.8
Number of Column Lines = 83.7
Number of Characters in File = 1841
Number of Words in File = 314
```

```
+++ FINISHED +++
```

```
Process another file? (Y or N )
```

A small text file yields all this information when run through Excount. Note the difference between Characters in File and Words in File.

```
10 REM Excount                                07B1
20 c1$=CHR$(27)+"H"+CHR$(27)+"E"             09F3
30 PRINT c1$: PRINT SPC(26) "EXCOUNT: ASCII TEXTFILE PROCESSOR" 2372
40 PRINT:PRINT                                0957
41 PRINT SPC(10) " Press <ENTER> or <RETURN> after each prompt": GOTO 70 23C6
50 PRINT:DIR                                  06BE
60 PRINT                                       0482
70 PRINT: INPUT "Name Of File?: ",file$       1300
80 PRINT: INPUT "Average number of characters per line (inc spaces)?: ",e 2617
90 PRINT: INPUT "Number of lines per Centimetre?: ",f 1D0E
```

Line 20 sets up the screen clearing routine while the rest of this section eases the user in with prompts.

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```

100 IF FIND$(file$)="" THEN 101 ELSE 110                                0D76
101 PRINT:PRINT CHR$(7)                                                0B4F
102 PRINT SPC(2) "No such File! Files available on this disc.":GOTO 50 2122
110 PRINT c1$:PRINT:PRINT:OPEN "I",1,file$                             1515
120 PRINT SPC(20) "WARNING! This program takes about 60 secs./100 words. 2312
130 PRINT SPC(20) "All results are approximate. "                      18B6
150 PRINT SPC(20) "So be patient and don't panic!":PRINT:PRINT        1F6C
160 PRINT SPC(20) "PROCESSING FILENAME: ";UPPER$(file$)               1C4A
170 WHILE NOT EOF(1):$=INPUT$(1,1)                                     0FA6
180 b=b+1: c=b/e: d=c/f                                                0909
190 WEND                                                                0404

```

The text file is sought using Find\$(FILES). If it isn't found, a beep sounds and you are passed back to line 50 to be shown the directory.

```

200 CLOSE                                                                0411
210 PRINT: OPEN "I",1,file$                                             0BB3
220 WHILE NOT EOF(1):$=INPUT$(1,1)                                     0F99
230 IF $=CHR$(32) THEN 260                                              0A78
240 IF $=CHR$(33) THEN $=INPUT$(1,1):IF NOT EOF(1) THEN 240 ELSE g=g-1 1E90
250 g=g+1                                                                0352
260 WEND                                                                03FD

```

The heart of the program. Your text file is checked character by character within the WHILE.....WEND loop beginning on line 220.

```

270 PRINT "Size Check Of File: ";UPPER$(file$)                        1499
280 d=ROUND(d,1): PRINT:PRINT "Number of Column Centimetres = ";d      2214
290 c=ROUND(c,1): PRINT:PRINT "Number of Column Lines = ";c           1E77
300 PRINT:PRINT "Number of Characters in File = ";b                    19C2
310 PRINT: PRINT "Number of Words in File = ";g                        176E
320 PRINT: PRINT: PRINT SPC(36) "+++ FINISHED +++":CHR$(7)           197E
330 PRINT: PRINT SPC(20) "Process another file? (Y or N) "             1BA9

```

All the information you needed to know about the file is printed out here and you are prompted for a new one.

```

340 a$=INKEY$                                                            04F9
350 IF a$="" THEN 340                                                    0750
360 code=INSTR(1,"YyNn"),a$                                             0DC3
370 IF code=0 THEN GOTO 330                                              0BD3
380 ON code GOTO 390,390,400,400                                         0C72
390 RUN "EXCOUNT                                                        094A
400 END                                                                0361

```

Final farewells from the program with an example of an INKEY\$ routine which starts in line 340.

## Plot Routine Apologia

The complexity of Larry Simons' Plot, Draw, Circle routine published last month gave rise to a few problems. Please note the following amendments:

- 1) The end of Line 50000 should read 10\*(i-6010)
- 2) Line 6010 should read:  
IF PEEK(0)-255\*PEEK(7)->629811 THEN ERROR 7 ELSE MEMORY  
8\*PEEK(0)GOSUB 60000.

This allows the GOSUB 60000 in line 20 to be repeated while debugging your own applications without having to reset Memory everytime. However, it won't detect code loaded by other Basic programs.

Lawrence Simons has provided a plethora of highly-detailed information on these routines, which he will be happy to impart. If you would like some reddy in-depth analysis of Plot, or indeed have queries relating to Malford Basic you should send an SAE, a blank disc (for a copy of Plot to save you typing), details of your query and £1 to cover copying costs to:

Lawrence Simons Bsc(Hons) FSS GIMA  
32 Tithe Walk  
Mill Hill  
London  
NW7 2QA

## Listings to Port

You might think that the listings printed in these pages were written by 8000 Plus staff to make a few extra pennies. This is not the case. These four pages of listings are entirely devoted to work sent in by readers such as yourself.

Recent trends have been for menu systems or money managers, all of which are useful and all of which we will continue to consider. We do, however, need some light relief; in other words....games, amusements, diversions.

The popular perception of the computer age seems to be centred on two points: shoot 'em up games such as the notorious Space Invaders, or interactive games such as Fish or Black Star. There are, however, many more ways in which your PCW can provide fun; word squares, maze games, car chase games, the list goes on.

So, if you would like to see your work in print, in 8000 Plus, and you would like to be paid for your efforts, you will need to include the following: your listing saved in Ascii form on a 3" disc, a stamped addressed padded bag for return, full documentation and a covering letter stating that it all your own work and is unprinted elsewhere. Send all this to: Listings Plus, 8000 Plus, 4 Queen Street, Bath, BA1 1EJ

# FAST FO

Many arguments over computers centre on benchmarks. David



## Ancient Greek

Erastosthenes (276 – 194 BC) was the librarian in Alexandria when that library was the most famous in the world. Among his achievements was to calculate the circumference of the earth about 2000 years before Magellan proved it was a sphere by sailing all the way around. He used the difference in the length of shadows cast by the sun at Alexandria and Syene as the basis of his calculations.

**Not getting enough listings? Some computer enthusiasts base all their decisions concerning a computer's worth on listings, specifically on benchmarks. These are programs designed to allow interested parties to compare the speed of two different computers. But who designs them and just how relevant are they to the average computer buyer?**

Most 8000 Plus readers will have too much sense to bother about benchmarks, but some of you will have seen references to them and wondered vaguely what they were all about. A good benchmark program has two main characteristics – it has to be:

- No earthly use to man nor beast.
  - Carefully designed to run as fast as possible.
- In fact, benchmark timings are as relevant to computer users as 0-60 acceleration times are to sane car buyers. Perhaps that's why those who market computers are so keen on them.

There are several problems with the benchmark approach. One of the most fundamental is that often you aren't comparing like with like. Computers can be either general purpose machines or dedicated to some particular activity. Just because the computer in your Sierra isn't as fast as an Amiga at graphics displays doesn't mean you'd be better off with an Amiga in your Sierra.

That's obviously an extreme example, but nonetheless true. The first thing to understand is that any benchmark

program is actually measuring the speed at which the program does something rather than the speed the hardware underneath does it.

If you have, for example, LocoScript and Protext on your PCW they will both take a file of text and move a marked block from one part of the document to another, but Protext does it a lot faster. Does that mean that a PCW running Protext is faster than a PCW running LocoScript? Not necessarily; what's faster is the algorithm used by Protext to achieve it's results.

## Like it or not

An algorithm is just a fancy word for how a thing is done, the set of rules the program follows to achieve its ends. Obviously, the first thing to do when designing a benchmark is to use an algorithm that can be easily implemented on all the machines you wish to test. If your chosen benchmark was how fast the machine can be made to save a 256 colour picture to a CD ROM you're going to have problems. Similarly, it wouldn't make sense to test the speed of the printer supplied with the machine since most computers don't have one.

The only sensible choice is mathematical calculation and perhaps displaying the numbers generated. This isn't strictly desirable, though, since displays vary so much depending on their degree of hardware support.

But how to do the calculations? Traditionally the method has been to use the supplied Basic (since it almost always was supplied) on the grounds that the computer is the sum of its hardware and software. Lately there has been a move toward compiled languages for

## Mallard, Basically

This is the first version of the Sieve. Not elegant, but straightforward. An array is initialised with all values at 1. Then every second one is set to zero, then every third one (if it hasn't already been done), and so on. When this process is concluded, the program proudly displays the index-numbers of all the array elements which are still 1. Clever, eh? If you give it a whirl, you'll find that it prints all the primes below 5000 in about 58 seconds, give or take a second or two. Number theorists sometimes come to blows about whether 1 is a prime number, but please don't write to me about it.

```
10 DIM a%(5000):FOR i%=2 TO 5000
20 a%(i%)=1:NEXT:FOR i%=2 TO 71
30 IF a%(i%) THEN FOR j%=i TO 5000/i%:a%(j%)=0:NEXT
40 NEXT:FOR i%=2 TO 5000:IF a%(i%) THEN PRINT
i%:
50 NEXT
```

## Cing is believing

As you know, real programmers write in C, so here's the same program in macho-speak. I timed this one at 57 seconds – not much of an improvement despite being compiled. Admittedly, I used MIX Software's compiler, which is very cheap, but complete. An integer-only compiler such as Hi-Soft's would run this kind of program quite a lot faster. (All right, I admit it, I tried and it does. The HiSoft version of this program runs in 31 seconds - Ed)

```
main()
{ int a[5000];
int i,j;
for (i=2;i<5000;i++) a[i]=1;
for (i=2;i<72;i++)
if (a[i])
for (j=i*i;j<5000;j++) a[j]=0;
for (i=2;i<5000;i++)
if (a[i]) printf("%5d ",i);
```

# FORWARD

David Wilson explains everything you ever needed to know about them



benchmark testing. But despite efforts to standardise the tests they remain hopelessly inadequate for comparing different machines.

Let me show you what I mean by using the same algorithm on the same machine but writing it in different languages and in different ways. The following programs are all based on a method of calculating prime numbers (numbers which have no divisor other than themselves and unity) which dates from well before the invention of the microchip – the Sieve of Eratosthenes.

All these programs begin by initialising an array. The next step is to mark two as true and every multiple of it as false (since two goes into every multiple of two). The next array subscript not marked as false is three, so this is marked true and every multiple of three is marked false. Four is already false so the next one to be marked true is

five. This process continues until there are no more unmarked array items. So, without further ado, let's take a look at the programs themselves.

Well, there you are; having tried them out (at the very least the two Mallard Basic versions), do you believe me now about benchmarks being piffle? Real-world programs spend most of their lives waiting for slow human beings to press keys – shaving a few micro-seconds off the processing time is obviously a totally sterile occupation. So why is it so fascinating? ■

## Pascal

Moving right along, we come to Pascal. You can feel the wind blowing through your hair when this is running – 10 seconds flat. I used Hi-Soft's H80 compiler, with all runtime checks switched off.

```
PROGRAM primes;
VAR a:ARRAY[1..5000] OF INTEGER;
i,j:INTEGER;
BEGIN
  FOR i:=2 TO 5000 DO a[i]:=1;
  FOR i:=2 TO 71 DO
    IF (a[i]=1) THEN FOR j:=2 TO 5000 DIV i DO a[i*j]:=0;
  FOR i:=2 TO 5000 DO
    IF (a[i]=1) THEN WRITE(i:6);
  END.
```

## CBasic

They had fast programs in the old days, as well – Digital Research's CBasic can still be prodded into a fair turn of speed, if the wind is in the right direction.

Not much tinkering was needed with the original Mallard program, as you can see. It runs the course in 11 seconds, so the difference between it and the Pascal version is well within the margin of error of my elderly stop-watch.

```
DIM a%(5000):FOR i%=2 TO 5000
a%(i%)=1:NEXT i%:FOR i%=2 TO 71
  IF a%(i%) THEN FOR j%=2 TO
5000/i%:a%(i*j%)=0
NEXT j%:NEXT i%:FOR i%=2 TO 5000
  IF a%(i%) THEN PRINT USING "#####";i%;
NEXT i%
```

## Basic – of a kind

There's more than one way to peel an artichoke, though. You may not think my final program looks much like Basic (or, indeed, like anything on earth), but it's mine, and I'm fond of it.

This masterpiece will print out (in hexadecimal) all the primes up to and including 16381. It does more than three times as much work as the others, in a cool 10.5 seconds. Although it incorporates a speeded-up print routine, the actual display is what takes nearly all the time – the arithmetic is done in a flash. I'd have liked to spend the next seven pages explaining exactly what goes on in the program, but since my last breakdown my analyst has told me not to get too excited.

```
10 h=HIMEM:MEMORY 32767
20 DATA
33,0,128,62,1,119,35,203,116,40,250,6,127,17,2,0,175,2
05,
148,192,19,16,250,33,2,128,17,0,195,213,126,183,196,9
2,
193,35,203,116,40,246,175,205,142,193,225,195,192,19
3:
s=494001:i%=47:GOSUB 90
30 DATA 33,0,128,25,25,119,203,116,40,250,201:
s=493001:i%=10:GOSUB 90
40 DATA
124,230,127,205,112,193,125,205,112,193,62,32,195,14
2,193:
s=495001:i%=14:GOSUB 90
50 DATA 245,15,15,15,15,205,132,193,241,195,132,193:
s=495201:i%=11:GOSUB 90
60 DATA 230,15,198,48,254,58,56,2,198,7,18,19,201:
s=495401:i%=12:GOSUB 90
70 DATA
175,78,177,200,229,205,239,253,225,35,195,193,193:
s=496001:i%=12:GOSUB 90
80 v=494001:CALL v:MEMORY h:END
90 FOR i=0 TO s+i%:READ m%:POKE
i,m%:NEXT:RETURN
```

## Setting standards

So important are benchmarks to marketing people (and computer magazines) that there are almost as many benchmarks as computers to try them on. For the most complete, and incomprehensible, examples of the species see various issues of the American Byte magazine. These days even the British Standards Institute are in on the act and offer benchmarks not just for computer performance but for computer performance as well.





PROTEXT	Document	peripher.al	2K	Justify Off	Word-Wrap
Page 1	Line 1	Col 78	No markers set		
RAM.0					
RAM.0/system					
RAM.0/system/panel					
bbs.cnf	24-Jul-1988	15:00:24	24-Jul-1988	15:00:24	63
hattery.cnf	12-Jul-1988	00:35:40	12-Jul-1988	00:35:40	64
novel.m	12-Jul-1988	00:31:06	12-Jul-1988	00:31:06	64
main.cnf	06-Jul-1988	13:47:00	06-Jul-1988	13:47:00	65
prgrams.cnf	30-Jun-1988	10:47:21	30-Jun-1988	10:47:21	65
RAM.0/system/printers					
cliten.psr	21-Dec-1988	17:01:36	21-Dec-1988	17:01:36	181
shima.psr	25-Jun-1988	02:08:32	25-Jun-1988	02:08:32	178
RAM.1					
RAM.1/photographs					
lyphoto.m	02-Oct-1988	00:05:24	02-Oct-1988	00:05:24	1170
lyphoto.dat	06-Oct-1988	19:45:40	06-Oct-1988	19:45:40	718
lyphoto.mdr	06-Oct-1988	19:44:26	06-Oct-1988	19:44:26	173
lyphoto.l	23-Sep-1988	11:22:06	23-Sep-1988	11:22:06	75
lyphoto.ttl	23-Sep-1988	11:14:17	23-Sep-1988	11:14:17	171
RAM.1/cil					
dmo.cil	07-Jul-1988	00:45:14	07-Jul-1988	00:45:14	232
RAM.1/wordpro					
RAM.1/wordpro/notes					
softsup.mts	Yesterday	15:44:03	Yesterday	15:44:03	2298
photoeng.mts	30-Dec-1988	14:09:29	30-Dec-1988	14:09:29	764
llicorp.mts	09-Dec-1988	13:38:26	09-Dec-1988	13:38:26	449
acet.dat	23-Oct-1988	12:24:38	23-Oct-1988	12:24:38	362
rocksw.mts	16-Jul-1988	11:12:43	16-Jul-1988	11:12:43	146

This really is a directory from a Z88 PIPed across to the PCW and thence into Protext.

with the ability to use wildcard specifiers for directory and file names and we have a quick way to produce a complete directory list of all Z88 files.

Here's how to do it:

- 1/ Enter the Filer by keying [F] or selecting it from the Applications menu in the Index.
- 2/ We now need to activate the spool file: do this by keying [I+S] (ie Square, Plus, S). The letters CLI will appear in the status window at the right hand side of the Z88 screen indicating that the spool file is active.
- 3/ Select the Catalogue Files option from the Commands menu or key <CF.
- 4/ The Catalogue Files window will appear with the **prompt name**: displayed near to the top. To list all files on the current device key [I/\*] at the prompt and press ENTER.

Note: The two slashes // mean 'all directories' and '\*' means 'all files'.  
5/ If you wish to list the contents of other devices, simply insert the appropriate specifier at the prompt. For example, if the current device is RAM.0 and you wish to catalogue RAM.1 (a RAM card in Slot 1), repeat steps 3 and 4 but key 'RAM.1/\*' at the prompt and press ENTER.

Note: Do not use a wildcard in the device specifier (ie 'RAM.\*'). The Z88 attempts to catalogue the temporary device: RAM. - and crashes! You must specify each device explicitly (all catalogues are however appended to the same spool file, so producing a complete directory list).

6/ When you have catalogued all the required devices, de-activate the spool file by keying [I-S] (Square Minus S). The letters CLI will disappear from the status window

and the spool file is closed.

7/ The spool file containing the full directory catalogue is stored in a temporary device with the specifier :RAM. - and the filename S.sgn. This can be loaded into Pipemarg, printed from the Z88 or transferred to the PCW.

To load it into Pipemarg, key <FL or select Files from the Pipemarg menu and press ENTER. At the Name of file to load prompt, key :RAM.-S.sgn then move down to the Load as plain text option, key Y and press ENTER.

The file contains a complete hierarchical structure showing the device(s), directory(s) and subdirectory(s) in an indented list with the associated filename(s), creation/update time(s) and date(s) and file size(s) in bytes.

If you wish to retain the file in the Z88 for future reference, it is advisable to resave it on a standard device.

Carl J Lawrenson  
Merseyside

## Counting coup

**T** Have you ever wished that LocoScript could count, accurately and automatically, occurrences of individual words or phrases? This is something I have to do every year as part of preparing a large number of GCSE entries.

In particular I need to verify that the number of entries in each subject tallies with other information I've been given and sent back by the summary sheets later with the examining boards. For example, I need to be able to count up the number of occurrences of a

sequence such as 9652-09-13.

Of course you could use [FIND] and count them as you work through the document - a bit tedious. But there is a way to force LocoScript to do it for you.

First make a copy of the document in case things go wrong, then open the copy for editing.

Right at the start set the line spacing to zero by typing [+][LS 0] [ENTER] so that you are always on page one.

Use [EXCH] to find your phrase and change it to the same phrase plus the NEW PAGE symbol, [Alt][RETURN] and select Automatic Exchange. The program

will now start a new page every time it finds the phrase.

Subtract one from the final page number (since there is no phrase on the last page), and voila, you have the exact count.

To reset for the next phrase either Abandon edit and start again or go back to the beginning and use [EXCH] to strip out the new page symbols.

One point to remember is that you must be sure that the phrase you're searching for cannot be confused with other data in the same document.

Brian Holden  
Surrey

h: group 0/DOCUMENT.000 Editing text.

Layout 1 P10 L50 CH40 I25

Find: gerbilflux

Exch: \*

☒ Ignore case

☒ Preserve case

☐ Look for whole words

☐ Use wild cards

Manual exchange

☒ Automatic exchange

In order to promote clarity there isn't actually a lot of text in this document, but if there were this is what you would do. Set the line spacing to zero and go through exchanging the string in question with a page break symbol.

A clever use of the EXCHANGE facility to count occurrences of a particular phrase.

## Spiked story

**Q** I use an Amstrad PCW 9512 in a house in a suburban area. It has been suggested to me that

I require a spike protector at the mains plug to safeguard data on disc from corruption caused by surges in the mains electricity supply. Is this necessary or even desirable?

J A Sutherland  
Edinburgh

**8000 PLUS** This is a surprisingly hard question to answer, but we'll have a go. First off, the switching power supply in the PCW does a good job when it comes to protecting the PCW electronics. Since the chips in the PCW are very sensitive to high voltages they'd be dropping like flies if voltage peaks were getting through (and of course the electricity supply industry builds in its own spike suppressors).

Most voltage spikes come from household electric machines (washing machines, central heating pumps, drills and so on), so make sure the suppressors on these are working (you'll hear the radio crackling if they aren't).

I'm told that data loss is not so much the result of voltage spikes as of high-frequency line noise on the 240v electricity lines which goes straight through spike

suppressors and switching power supplies and can be interpreted by the Z80 as legitimate input, with unpredictable results. So what would appear to be more useful is a high frequency choke rather than a spike suppressor. Most effective - and cheapest - is to take backups of discs.

## Brainstorming

**T** It's been said that it takes 30 minutes to learn Brainstorm and a lifetime to explore its possibilities. After working with it for ten months I've explored a few.

As a diary it's superb: create a monthly diary, April 89, May 89 and so on but don't bother to enter every day, just those that you need. Enter the days as Tue 4 April, for example, and promote them to headings using the [F3] key.

Type in your appointments, visits, social obligations and memos and 'put' them as an item under the relevant date. During the day entries can be updated with the results of visits, meetings, and phone calls as well as being assigned to other existing headings.

When loading a particular month, it can be merged with your telephone number directory so that at any

## TIPOFFS

time you can search for a particular name and get the telephone number.

Monthly diaries can be merged for searches over an extended period of time; finding details of staff holidays or hours worked for example. This information can be found by defining a search pattern and 'putting' the results together.

Finally, a text file built up in various ways can be written to another file and imported into your favourite word processor either for polishing or inclusion in larger documents.

In fact I find using Brainstorm,

together with Flipper, a wonderful multi-purpose aid; however, I rarely use it as an ideas processor.

**Bill Peebles**  
**Morton**  
**Co Durham**

### Justifiable words



I don't receive your magazine regularly, but I always enjoy reading it when I go and buy a copy (It's going up I'm afraid - take out a subscription now and save money - Ed). I have two queries which I hope you will be able to help me with. I

recently bought a Star LC-10 printer for my 8256 which generally I am very pleased with. However, it has trouble with LocoScript documents which are right justified - it does not do a clean sweep from one side to the other, but proceeds in short jerky steps, taking much longer than it should. If the justification is cleared, the printer prints normally from side to side.

The second problem is with Masterfile 8000. When I try to print records, the LC-10 will not advance after each line, so the whole record gets printed on one line - not very legible! When I tried the old Amstrad printer, no problem - the records are printed out as they should be. However, it still wasn't quite right because the printer advanced half a page between each record which is not very economical on paper.

**Dr NG Lavies**  
**Leicester**

**8000 PLUS** When LocoScript drives the printer that comes with the PCW it has total control over it, which isn't the case with any other printer. With this and similar printers LocoScript (and other programs) have to rely on the facilities provided by the printer manufacturer. One which usually isn't provided on nine pin printers is space extension, which allows right justified text to be printed easily (the FX-800 does this if you're interested). So the answer is to give up right justification if you need more speed.

The problem with Masterfile is more subtle. It would appear that Masterfile is sending a carriage return but no line feed and that the LC-10 isn't producing a line feed automatically when it gets a carriage return. The LC-10 manual will tell you which of the dip switches need to be set to make it perform correctly but that hardly seems a good solution since it may cause problems with other software that sends line spacings - you'll get double spaced text with LocoScript for example. If anyone has a better answer to this problem, please let us know.

The final problem seems to be that you have Masterfile set to print one record to a page, after which it sends a form feed to get to a new page.

### Questionable characters



I have recently purchased a Panasonic Printer, KX-P1124, and after several weeks of trial and error have at last managed to get it operating from LocoScript commands - in Function Mode set the printer control panel to PGM, this over-rides the printer control panel and enables changing out of pitch etc, from within LocoScript. Also I am now able to print E signs. (The secret lies in setting the Printer in the initial set-up to USA not England. Default font draft, Emulation LQ-2500 Graphic, Image bi-direction, Auto CR on, Auto LF off, Alt. Graphic off, thanks to

Locomotive Technical Support for this tip).

There remains one major drawback which as yet has stumped me. Although the printer is perfectly capable of printing a wide variety of symbols, mathematical and technical, I have as yet only been able to print very few of these commands from within LocoScript. In most instances a gap is left on the page. Has anyone been able to solve this?

**S Dunlop**  
**Southsea**  
**Hants**

**8000 PLUS** Thanks for the advice on using the KX-P112. But again, we shall have to throw this open to other readers with this particular printer. How do you get those characters?

### Organisational man



I use a 9512 for my business and operate a customer accounts list in Basic. I have recently started to use LocoFile, and I have started to combine the two with Flipper. It takes me from the word go 4 minutes and 15 seconds to load (is this a record?). Am I doing something wrong? This is the sequence:

Load CP/M plus  
Load Flipper...type FLIP2  
Load LocoFile Start of Day disk  
Load LocoFile working disk  
"FLIP" (EXTRA SHIFT.EXIT  
TOGETHER)  
Load CP/M...type BASIC  
Load Basic program  
Type LOAD MASTER  
Type RUN  
Could we have a few more articles and tips for the small one man band business?  
**John B Garbutt**  
**Woodhall Spa**  
**Lincs**

**8000 PLUS** This is precisely the kind of thing for which Flipper is intended, but yes, it does take a while to set up. As far as I can see, you aren't doing anything wrong, but you can speed things up a bit. The most obvious thing to do is to get a second disc drive, which will cut down the disc swapping.

I assume that you aren't really loading CP/M twice (I don't see how you could) - just loading Basic; this stage can be shortened by writing a SUBMIT file to load Basic and run your accounts program after flipping to load LocoScript (see page 29 on using SUBMIT). Still, while it might take a few minutes to set up, how many minutes a day does it save?

### Single key action



You can assign strings to the function keys in the Mini Office comms module, and save

```

= APRIL 1989
- Sat 1 Apr
- Sun 2 Apr
- Mon 3 Apr
- Tue 4 Apr
- Wed 5 Apr
- Thu 6 Apr
- Fri 7 Apr
- Sat 8 Apr
- Sun 9 Apr
- Mon 10 Apr
- Tue 11 Apr
- Wed 12 Apr
- Thu 13 Apr
- Fri 14 Apr
- Sat 15 Apr

Enter text at > or press command key (9 to identify command keys)

Line 1 of 16 Level 1 Man left 45K

Setting up the dates in your Brainstorm monthly diary is simple and fast.
  
```

```

- Tue 4 Apr
- Tele John Carter with re completion date for Robson Contract.
- Comp also urgent proposals.
- Dist (0945 hrs) from Samsons re new tractor.
- Working lunch with chairman at Tonus.
- Johns birthday next Sat - book table, orders flowers, buy present.
- Review last weeks manpower performance stats.

In (arrow) On10 [FIND] Top of list (+) Promote [F2] To title [STOP]
In (arrow) On10 RELAY End of list (-) Denote [F1] Jump to #
Key Fnd Plot Amend entry [Tab] Title amend Erase line [OUT]
List Exit [EXIT] Prev/next RS [F3] Mark [M] Search pattern

Entering data for a particular day in your monthly diary
  
```

```

= Tue 4 Apr
- MEMO
- From: Bill Peebles
- To: Ian MacDuff
- 4th Apr 1989

Re last weeks manpower performance stats. The items marked (+)
are well above budget expectations. Please investigate and let
me have a fn. report by Mon 10 Apr.

Enter text at > or press command key (9 to identify command keys)

Line 19 of 33 Level 2 Man left 44K

Not much chance of running out of space here no matter how many memos you intend to write
  
```



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# 8000 PLUS



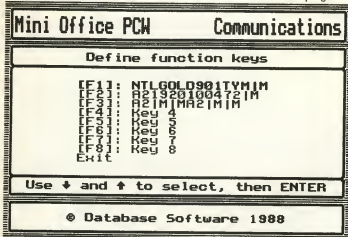
# TIPOFFS

them to a definition file, which is all very fine, but the first three function key numbers are predefined, which means they don't have to be loaded in. Defining some of the others seemed like a good idea; no more realising that I'd forgotten my ID when Prestel started asking awkward questions.

The original unmodified screen looks like this, the existing definitions are for users of BTs PSS service. To add your own strings permanently to the comms module you will have to use SID.

Notice that the length of the new strings is different from the length of the old strings, and this has to be allowed for. At the beginning of each string in the code is a byte that tells COMMS how long the string is; this has to be altered to reflect the changed state of the strings, and it has to be in hex, sorry. For the first string, 08BEE9 which brings up the number 05, this has to be replaced with 0C (hex for 12), the second string length is defined in the same way.

With all this done the program



First you will need to use SET in order to work with COMMS.COM; to do this use the command:

**SET COMMS.COM[RW]**

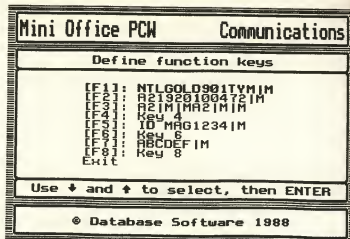
Now copy SID and COMMS to drive M. What we'll do is change the definitions for [F5] and [F7] from Key 5 and Key 7 to ID MAG1234IM and ABCDEFIM (a fake ID number and fake password respectively [IM is the entry for a [RETURN] and the bar is obtained using [EXTRA]).

The complete sequence of actions is shown in the screen shot below.

can be copied back onto disc and tried out. Just load it up in the normal way and bring up the definitions menu.

(You will see that when we tried out this tip the actual memory locations were a bit different, not surprising as there are quite a few versions of Mini Office floating around. However, it doesn't make any difference to the principles, just the addresses. - Ed).

Now that you have the new version of your program working all you have to do is press the [F5] key to



transmit your ID number, or whatever, and the [F7] key to transmit your password. (Personally, I'm not entirely happy about the last bit, not for users of a commercial system where someone with your password can cost you money - Ed)

Reg Osborne  
Salisbury

## One liner

Something you often want to do in Basic is to check the space remaining on a disc. The following single line of Basic will display the space remaining on any drive.

```
10 PRINT"DRIVE?":D=ASC(UPPER$(INPUT$(1)))
65:A=48:FOR B=A TO 55:READ C:POKE B,C:POKE 51,D:
NEXT:RESET:CALL A:PRINT"REMAINING DISC SPACE IS";(PEEK(128)+256*PEEK(129))/8;
"K":DATA 14,46,30,0,205,5,0,201
When run, the program simply asks DRIVE? and expects the drive letter (A,B, or M). There is no need to press [RETURN].
```

This routine can easily be modified for use in your own programs (including splitting it up into more than one line, he's just showing off - Ed)

There are a few important points to note when using this routine, the first of them is that it uses the RESET command which closes all

open files. The problem is that this includes Jetsam files which aren't marked as consistent first, so make sure you close these properly first.

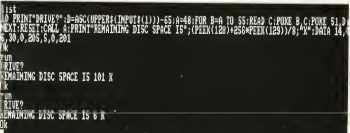
If you are using other data statements it's up to you to make sure you're reading the right ones. This routine hasn't been tested with hard disc drives though it ought to work, but try it out before relying on it.

Chris Shipp  
Kingsbridge  
South Devon

## Drive talking

I would like to connect a second drive to my early model PCW8256 (memory increased to 512K). I note, from the occasional browse of computer magazines, that one can connect a 5 1/4" drive. Would it be possible to use a 3 1/2" disc drive with the PCW? I have the opportunity to take, by way of a gift from a relative, a Cumana 3 1/2" drive; if the connection of this drive is feasible, could you advise where I might obtain appropriate connecting leads?

From reading advertisements in magazines, I see, also, that a 5 1/4" drive with TDOS utility is available for the PCW - such a utility would be very welcome - can one purchase transfer utilities separately, for use with a 3 1/2" disc drive, if such drives are



This little Basic routine doesn't echo the drive letter to the screen when it's called.

suitable, and if so from whom?  
The principle sources of text and data files for transfer into and out of CP/M would be MSDOS and ASC11 data export files written to disc within highly specialised software in scientific and technical contexts.  
**Sean White**  
**Haverford West**  
**Dyfed**

**8000 PLUS** The PCW doesn't really care what physical size its disc drives are and will work quite happily with 3 1/2" or 5 1/4" drives as either A or B drives. It looks at them as nothing more than so many tracks with so many sectors on them (there is a 5 1/4" drive on the 9512 that this is being typed on).

The problem is that while electrically, all these drives are the same, they have different connectors on them. The connection details are as shown in the box below, but bear in mind that the numbers may not match. They were taken from a working cable (but without numbers on the 34 way IDC connector) but we've since been told that the numbers on the 34 way connector are in fact reversed. Any good computer store should be able to make up and test a cable for you but be prepared for them to charge to do it.

If you have access to both a PCW and a PC you may find that the best way of transferring data is to format your discs in the PCW and use a PC utility like Uniform to write to them. Alternatively, Advantage Software (0242 224848) sell a utility that will allow you to read MS DOS discs on a PCW. It's called HIHO and will cost you £19.95, but we haven't used it and can't comment on how well it works.

## Long & short of it

For those of us with a 9512 and a daisywheel printer, the easiest way to print a long dash is to use (-Pitch 17)-(-Pitch). The two short dashes will now be printed as a single line. This can be stored as a phrase (under D for dash?) for easy use.  
**J D Graham**  
**Sunderland**  
**Tyne and Wear**

W: group 0/PITCH1D.000 Editing text. Printer idle. Using  
Layout 1 P:10 L:1 C:0 L:0 Page 1  
COPY text: select area then press CUT to save & remove, COPY to save or C&N

dash it, hnh

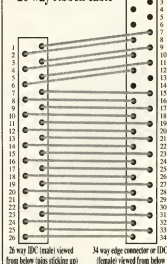
The ordinary dash on the 9512 is often considered to lack a little something; macho types like to cut a bigger dash. This is best achieved using something like this:

(Pitch17)-(-Pitch)

This can be saved as a phrase using (COPY)select(COPY)and the letter to save it under.

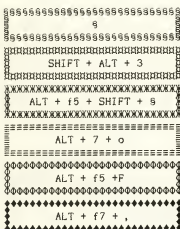
If you're going to dash then don't be halfhearted about it. Go for a really big dash.

## 26 way ribbon cable



## Act of partition

It isn't always necessary to go to the trouble of defining new characters in order to create an attractive border for text (8000 Plus issue 17 Page 26 -you've been thinking about this hard and long, haven't you? - Ed). With a little imagination the existing character set can provide a variety of pleasing underlines and borders  
**A Rees**  
**Haverford West**  
**Dyfed**



## LOGO SCRIPT 2 - KEYSTROKES.

Effect	On.	Off.
1. Underline	+ UL	- UL
2. Word U/line	+ W	- UL
3. BOLD	+ B	- B
4. Italic	+ I	- I
5. +Centre+	+ CE	
6. Double width	+ D	- D
7. Justify L/R	+ J	- J
8. Char. Pitch	+ P and desired pitch.	
9. -Right align	+ RA	
10. Superscript	+ SR	- SR
11. Subscript	+ SB	- SB
12. Soft hyphen	-	
13. Hard hyphen	-	
14. Soft space	+ spacebar	
15. Hard space	+ spacebar	
16. Remove tab	- during Layout Edit.	
17. End page	+ LL or ALT RETURN	
18. Line spacing	+ LS 1k Retn. (default 1)	
19. Line pitch	+ LP Retn.	
20. Stock layout	+ LT x (x=N* of layout)	
21. Carriage Retn.	+ CR * etc. over O default.	
22. Page break	+ K x (x=N* of lines above)	
23.	- k x (x=N* of lines below).	
24. Line across	+ UL +RA+space+ -UL	
25. Symbols + +	ALT f7 Y R (ALT f1 to return to normal)	
26. CAPS lock	ALT ENTER	
27. M	EXTRA I	
28. N	EXTRA J	
29. +	EXTRA L	
30. +	ALT = (double dagger = Shift +)	
31. I (vert. stroke)	EXTRA 8	
32. +	EXTRA Z	

## SUPERSHIFT KEYSTROKES.

ALT and fi needed after each supershift to return to normal format

33. α ALPHA	ALT f3 and a
34. β BETA	ALT f3 and b
35. n PI	ALT f3 and p
36. Σ Zigma	ALT f3 and u/case S
37. + A	ALT f7 and q
38. + R	ALT f7 and w
39. + I	ALT f7 and e
40. + O	ALT f7 and r
41. + W	ALT f7 and t
42. + S	ALT f7 and y
43. / Tick	ALT f7 and n
44. ♦ Club	ALT f7 and SHIFT comma
45. ♦ Diamond	ALT f7 and comma
46. ♥ Heart	ALT f7 and full stop
47. ♠ Spade	ALT f7 and SHIFT full stop
48. / Note	ALT f7 and #
49. - Two	ALT f7 and SHIFT % (e)
50. - Face	ALT f7 and /

Others available- page 263 et seq Loco 2 Manual.

The ideal desktop companion - you can easily see which combinations produce which effects

## Key facts

For anyone who has trouble remembering which key combinations produce which effects on the screen, this chart is the ideal desktop companion. No

more forgetting how to get the character or effect you want and having to plough through the manual looking for it.  
**F R Peacock**  
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# The Good Software File

Up Date...

These pages provide a guide to the best software around for the Amstrad PCW. Published in three monthly parts, this time it's the turn of Spreadsheets, Games and Graphics to face the ultimate test. We've set out to test every piece of software we could lay our hands on, and to give you enough information to decide which program is the one you might be looking for.

The selection isn't comprehensive, but the software listed here represents what we think is the best of that currently available. As well as a brief summary of what they do, there are the main Plus and Minus points for each program - Pluses have a ▲ by them, Minuses a ▼.

Most of the packages mentioned throughout this guide should run on all three models of the PCW - unless, of course, we have stated otherwise.

## Spreadsheets

If a database replaces an address book, then a spreadsheet replaces the back of an old envelope. It is really an electronic piece of paper which allows you to jot down numbers, juggle them around and analyse the cost benefits of a situation. Vital for businesses, spreadsheets can be useful to home users too: if you want a bank loan you will find that showing your bank manager a spreadsheet print-out of your living expenses answers a lot of questions!

A typical spreadsheet has a grid of rows and columns. This grid forms a screenful of cells identified by their column and row numbers, e.g. A3, K36 etc. Each cell can contain a simple number, some text to make the page easier to read, or a formula telling the spreadsheet to work out a number using values from elsewhere. The power of spreadsheets is in this last category, formulae. You can make a cell's value depend on the value of cells above it, or to the left of it, and this value is then automatically updated if changes are made to the other cells.

So how do you choose between the various spreadsheets? One difference is sheet size, i.e. the number of cells you are allowed to work with. You'll need a few hundred for home use, and 1000 or more for business use. Another area is the range of formulae that you can use - all spreadsheets allow simple column and row totalling, but with some you can get complex statistical analyses too. As with all software, think very carefully what you will need before choosing.

### Mini Office Professional

£29.95 • Database Software • 0625 878888

Mini Office is a suite of five integrated programs - database,

word processor, graphics module, comms package, and a very good spreadsheet. Broadly similar to SuperCalc in operation with usual features of auto or manual recalculation, replicating of rows/columns, powerful range of arithmetic functions etc. Printout is a strong point - rows/columns can be put into landscape etc. and print out. NQ or even sideways! Can't sort and can't save data or structure of a spreadsheet, but maximum size of spreadsheet is claimed to be 320K. You can use the data from a spreadsheet in the graphics module directly. The manual is, however, pretty useless.

#### PLUSES - MINUSES

- ▲ Good, full-featured easy to use spreadsheet
- ▲ Prints in draft, NQ or even sideways
- ▲ Maximum size of spreadsheet 320K
- ▲ Can transfer data directly to graphics module
- ▼ Manual is little more than an index of commands
- ▼ Working out how to transfer data to graphics module requires a lot of inspired guesswork
- ▼ 'Save' options not as versatile as SuperCalc

### Cracker turbo

£49.95 • Paperback Software • 0245 265017

A spreadsheet designed with advanced calculating power firmly in mind, including statistical functions. The screen layout is totally defined by the user, and cell value calculations can almost be full programs, e.g. DO...WHILE. It might prove too complex if you want a simple spreadsheet operations. The screen messages are very helpful though. Turbo is claimed to be faster than Cracker 2 though sometimes isn't noticeably so.

#### PLUSES - MINUSES

- ▲ Can cope with very complex formulae
- ▲ Flexible screen format defined by the user
- ▲ On-screen prompts are very clear
- ▲ Graphs/charts can be automatically produced
- ▼ Documentation is large, but obscure and confusing
- ▼ You've got to do a lot of work to get started
- ▼ Very complex for quick, simple applications
- ▼ Needs some programming skills to get the most out of it
- ▼ Free workspace is on the small side (17K) although memory is used efficiently

### SuperCalc 2

£49.95 • Amsoft/Sorcim • 091 567 3395

The best selling spreadsheet, officially endorsed by Amstrad. SuperCalc 2 is broadly similar to ScratchPad Plus, and at least as effective, but it has a smaller workspace and is less flexible about the allowed spreadsheet dimensions. You can store sequences of commands for repetitive calculations.

#### PLUSES - MINUSES

- ▲ Excellent manual - welcome for beginners and experts
- ▲ Stores commands to run from files
- ▲ 'Data Interchanger' allows you to transfer spreadsheet data to other applications

- ▲ Comprehensive range of calculation functions available
- ▲ Screen can be split into 2 windows
- ▼ Spreadsheet is limited by memory size
- ▼ No graphical output facilities

### First Calc

£29.95 • Minerva Systems • 0392 437756

Touted as a quick and simple to use program for the beginner, this is nevertheless quite a powerful spreadsheet, with a large capacity, ability to replicate formulae, export etc. Really it's not vastly more user-friendly than the rest but a good value package all the same.

#### PLUSES - MINUSES

- ▲ A lot of program for the money
- ▲ Good tutorials with demo files
- ▲ Simple to use but reasonably sophisticated
- ▼ Not much easier to use than more powerful packages
- ▼ Program is limited by the memory capacity of the PCW (300 - 400 filled cells)

### Pocket CalcStar

£39.95 • Davis Rubin Associates • 0386 853610

A fairly traditional spreadsheet but with a few surprising features. It's not particularly large or fast, but is attractively priced and has all the basic functions. Can form part of an integrated system with the other Pocket products. A safe buy for the first-time user, and the documentation is up to the usual high MicroPro standards.

#### PLUSES - MINUSES

- ▲ Good range of mathematical calculation functions
- ▲ Good documentation - sections for beginners and reference
- ▲ You can preset a course of cells to visit, for form filling, e.g. ReportStar
- ▼ Screen size is very small - 10-15 spreadsheet rows.
- ▼ No auto-recalculate facility
- ▼ It's not very fast
- ▼ You can't type heading text etc. over adjacent columns

## Graphics

You can use a graphics package to create and store diagrams and drawings on disc, to be amended, adjusted or printed out at will.

There are three main types of graphics package: art, technical drawing and

# GOOD SOFTWARE GUIDE

graph plotting programs. In art packages the emphasis is on designs and pictures, with freehand drawing facilities, a selection of pretty type fonts and a variety of patterns to fill areas with. These are made much more effective and easier to use if you have a mouse.

Technical drawing packages concentrate on shapes, such as squares and polygons, lines and labels. Finally graph plotters will take your data and turn them into bar charts, pie charts and so on. 9512 owners will have to buy a dot matrix printer to do all this, of course.

## Lightpen/Mouse art

£79.95 or £129.95 • Electric Studio • 0462 834864

Obviously you are buying a piece of hardware — a light pen, or a mouse, that can be used with many PCW graphics programs, like DRI Draw. In practice, its main use is with the software that comes with it, a very good picture drawing package. You can freehand draw, get airbrush effects, create polygons and circles, and move blocks of pixels. Great fun.

### PLUSSES - MINUSES

- ▲ Light pen hardware is a simple plug-in module
- ▲ Can use freehand pen or cursor keys for accuracy
- ▲ Menu selections are easy to understand
- ▲ Full range of functions for area filling, shading and spraying
- ▲ Blocks of pixels can be moved and copied
- ▼ You would need to know your way around CP/M to use the lightpen itself with other graphics programs
- ▼ Items on the screen are purely pixels, not distinct elements
- ▼ No positioning of items by numeric co-ordinates for accuracy

## Master Paint

£19.95 • Database Software • 0625 878868

A WIMP environment graphics package (windows, icons, menus, and pointer) which will run with Kempston, AMX or Electric Studio mice. Usual facilities for drawing curved or straight lines, polygons, boxes, circles and ellipses, and a host of 'fill' patterns. 'Undo' function and eraser facility, plus the ability to zoom in on a part of the picture.

### PLUSSES - MINUSES

- ▲ WIMP environment makes it easy to use
- ▲ Zoom function lets you fine-tune your pictures
- ▲ Good range of effects
- ▲ Undo and erase facilities
- ▼ Text fonts are boring
- ▲ Can't move large blocks with the copy function

## MasterScan

£69.95 • Database Software • 0625 878868

A device which clips on to your printer head and scans pictures, sending the digitised result to disc. You can then use the pictures in desktop publications or in other graphics packages, such as Master Paint. Very useful for newsletter production but the claims for Master Scan as a low-cost fax machine are grandiose — the quality of scanned text is poor if the text is anything less than headline size.

### PLUSSES - MINUSES

- ▲ Simple method of getting good digitised graphics
- ▲ Suitable for all desktop publishing programs
- ▲ Contrast control useful
- ▼ Quality of scanned text is bad — no good for faxes
- ▼ Problems with illustrations containing lots of grey

## Postafont

£9.95 • Independent User Group • 0242 224340

It's easy to ring the changes with the five fonts provided on this poster program because you can have either solid or hollow characters in one of six patterns. Very good value for money but best for the occasional poster producer.

### PLUSSES - MINUSES

- ▲ Its really good value for money.
- ▲ You can freely mix fonts and styles
- ▼ The print commands are contained in a file which you have to create yourself.
- ▼ No warning if the poster is too big for the paper.

## Lightning BASIC

£24.95 • CP Software • 0993 823463

A very clever add-on to normal Basic which works on three levels. The first contains all the everyday commands, whilst the second and third levels are used for designing icons, characters and sprites. There is something in it for everyone, whether an experienced Basic programmer or a beginner.

### PLUSSES - MINUSES

- ▲ Simple and easy to use
- ▲ Makes simple Basic programs look really professional
- ▲ Good fun to use
- ▼ Documentation can be unclear
- ▼ Printed output is coarse draft quality
- ▼ Can only cope with simple graphics

## Complement Fonts & Borders

£12.50 • Dragonfly Designs • N/A

Although it can be used with all the main DTP packages, this latest complement disc was designed to work alongside Stop Press. The 11 fonts supplied on the disc show consistent good design and artistic flair and are easily loaded.

### PLUSSES - MINUSES

- ▲ The fonts provide a very professional finish.
- ▲ It is possible to rotate and reverse elements.
- ▲ Very user-friendly.
- ▼ Setting up borders tends to be difficult and time-consuming
- ▼ Printed output could be better (but it is still above average).

## Signwriter

£29.95 • Wight Scientific • 01 858 2699

Offers the widest range of features of any of the poster printing programs. Signwriter provides a range of 20 fonts, some of them very imaginative. Ideal for posters.

### PLUSSES - MINUSES

- ▲ You can redesign fonts and design your own symbols.
- ▲ A wide range of interesting fonts is available
- ▼ Not very user-friendly.
- ▼ Font design is slow.

## Stop Press

£49.95 • AMS • 0625 878868

Though touted as a DTP program, Stop Press is an excellent graphics package. Can present data in the form of graphs, pie charts etc., and has the usual range of facilities to draw and fill triangles, boxes and so on plus a very good 'zoom' option which lets you examine the effect of changes in drawing.

### PLUSSES - MINUSES

- ▲ Good graph drawing facilities
- ▲ Can design your own line patterns
- ▲ Good range of elements which you can modify if you wish
- ▲ Can superimpose one image on another
- ▲ Works with AMX and Kempston mice
- ▲ Is also a good DTP package
- ▼ Undesirably placed text is difficult

## AYE PLUS

£24.95 • CP Software • 0993 823463

The full title is 'All you ever wanted to know about graphics, the universe and everything on PCW 8256/8512 ... but were afraid to ask PLUS'! Phew. A wide range of little programs to do graphic things on the PCW like smooth scrolling, defining windows, moving sprites around. The programs are written in assembler, with the source code provided if you want to see how to program them for yourself and adapt the routines.

### PLUSSES - MINUSES

- ▲ Wide range of useful functions
- ▲ Can be used from BASIC, machine code, or other language
- ▲ The assembler source code is supplied
- ▲ Inexpensive
- ▲ Good manual
- ▲ CP don't mind you using their routines in programs you sell
- ▼ A bit long-winded to use from BASIC
- ▼ No easy way of loading just the routines you want

## VIDI PCW

£79.95 • Rombo Productions • 0506 414631

A very similar package to the Electric Studio digitiser, not much to choose between the two. Rombo's works with the Fleet Street Editor, Electric Studio with the Newsdesk International.

### PLUSSES - MINUSES

- ▲ Text can be inserted from a word processor
- ▲ 16 levels of shading
- ▲ Can print images to screen in defined order and time apart.
- ▼ Unhelpful manual

## Video Digitiser

£99.95 • Electric Studio • 0462 834864

A black box which plugs into the expansion port at the back of the PCW, into which you put a video camera or video recorder. It will then 'digitise' the picture it receives and display it on the screen. The result can be used as a normal graphic in any of the desktop publishing packages and can be edited, cut, etc.

### PLUSSES - MINUSES

- ▲ Automatically picks a good contrast level for the display
- ▲ Can store pictures for Light Pen or Mouse to work on later
- ▲ Can print out on a full A4 page
- ▼ Can't take simple TV signals — video only
- ▼ When used in a desktop publishing package can be as good as screened photographs



## Academy (Tau Ceti II)

£19.95 • CRL (01 533 2918) • 8000s only

The sequel to Tau Ceti. To qualify as an advanced skimmer pilot, you must complete successfully 20 missions. Blast enemy craft with your personally designed skimmer.

GRAPHICS 4/5 ADDICTIVENESS 5/5

LASTING APPEAL 4/5 VALUE VERDICT 5/5

## Armageddon man

£19.95 • Martech (0323 768456) • 8000s only

As Supreme Commander and world leader you have to prevent nuclear war from breaking out by preserving good diplomatic relations between the 16 member countries of the UNN. Nip conflict in the bud by providing sufficient food and resources.

GRAPHICS 4/5 ADDICTIVENESS 4/5

LASTING APPEAL 4/5 VALUE VERDICT 4/5

## Backgammon

£15.95 • CP Software (0993 823463) • All PCWs

A fairly good implementation of the gambling board game.



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### Word Processing

Locoscript 2 .....	£24.00
Locoscript 2 + Locospell 2 .....	£33.00
Locospell 2 .....	£18.70
Locomail 2 .....	£27.00
Locofont .....	£17.50
Locofont 2 .....	£13.00
24 Pin Drivers 8256/8512 .....	£21.00
24 Pin Drivers 9512 .....	£21.00
Tasword 8000 .....	£17.95
Tasspell 8000 .....	£11.95
Tasprint .....	£17.95

### Desktop Publishing / Graphics

AMX Stop Press .....	£36.40
AMX Stop Press + Mouse .....	£70.00
AMX Desktop + Mouse .....	£62.00
Desktop Publisher + Mouse .....	£62.00
Master Scan .....	£63.00
Master Scan + Paint .....	£67.00
Master Paint .....	£15.00
Digital Research Draw .....	£29.00
Digital Research Graph .....	£29.00

### Integrated Packages

Mini Office Professional + .....	£34.95
Spell Checker + Thesaurus .....	£18.95
Plan II .....	£15.00

### Databases

Masterfile 6000 .....	£30.00
Datastore II .....	£27.00
Locofile 8256/8512 .....	£27.00
Locofile 9512 .....	£27.00

### Utilities & Program Development

Turbo Pascal .....	£69.00
C-Basic Compiler .....	£29.00
Pascal M+ .....	£29.00
Rotafix .....	£29.00
Datafax .....	£32.95
Easy Labeller 8256/8512 .....	£29.00
Easy Labeller 9512 .....	£29.00

### Spreadsheets

Supercalc 2 .....	£42.00
Cracker II .....	£30.00

### Accounting

Accounts Plus .....	£95.00
Popular Accounts .....	£69.00
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Import Export

# Z88

# PCW

software diffusion

Z88 Import/Export, from C Port, allows easy exchange of files between any Amstrad PCW and the Z88.

PipeDream text files can be converted for reading into LocoScript.

A Printer server allows the Z88 to print onto the PCW's printer.

The program is easy to use, and is complete with instructions and a connecting cable.

Available now for £29.95, this utility is indispensable to those who use the PCW and the Z88.

Requires a PCW8256, 8512 or 9512 with the CPS8256 serial interface add-on.

software diffusion limited  
london house, 266 fulham road, london sw10 9el  
Tel: (01) 376 8038 Fax: (01) 376 5970

## Are you petting (whoops/letting) your (where is it?) comptu(er) down?

### lankey Typing Crash Course

for newcomers to computing. Takes you round the whole keyboard as fast as possible, teaching you the basics of touch typing in as little as four hours.

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Playing speed is easily alterable and is totally unrelated to the games level of skill control.

RANGE OF FEATURES	4/5	STRENGTH OF PLAY	3/5
GRAPHICS	4/5	DOCUMENTATION	3/5

### Batman

£14.95 • Ocean (061-832 6633) • 8000s only

3-D animated graphics as you guide Batman around Gotham City, looking for hidden parts of the Batcraft. Good range of hazards, and even a tune!

GRAPHICS	5/5	ADDICTIVENESS	5/5
LASTING APPEAL	4/5	VALUE VERDICT	5/5

### Blackstar

£14.95 • CRL (01-533 2918) • 8000s only

A traditional text adventure with large playing area. You explore Castle Blackstar in search of a power orb.

ATMOSPHERE	4/5	INTERACTION	2/5
CHALLENGE	4/5	VALUE VERDICT	4/5

### Bounder

£13.95 • Gremlin (0742 753423) • 8000s only

An athletics bouncing-ball game. You have to direct the ball off a treacherous network of squares & hexagons. Persevere – or use the cheat mode!

GRAPHICS	4/5	ADDICTIVENESS	3/5
LASTING APPEAL	3/5	VALUE VERDICT	4/5

### Brian Clough's Fortunes

£17.95 • CDS (0302 21134) • All PCs

A cross between Monopoly and Football Manager, combining board and PCW. Go for league and cup success – but keep the bank manager happy too!

GRAPHICS	2/5	ADDICTIVENESS	4/5
LASTING APPEAL	4/5	VALUE VERDICT	4/5

### Bridge Player 2000

£19.95 • CP Software (0993 823463) • All PCs

A few of the bids it makes seem a little strange, but as bridge programs on computers go this is pretty good. Claims not to cheat, even though it does!

GRAPHICS	3/5	STRENGTH OF PLAY	3/5
LASTING APPEAL	4/5	VALUE VERDICT	3/5

### Catch 23

£19.99 • Martech (0323 768456) • All PCs

A game of exploration on an inhospitable island which has been taken over by the military. Your task is to locate the 'most secret military complex on earth' and escape with the design of their most deadly weapon.

GRAPHICS	4/5	ADDICTIVENESS	4/5
LASTING APPEAL	4/5	VALUE VERDICT	4/5

### Classic Games

£19.95 • CP Software (0993 823463) • All PCs

A compilation of classic 'thinking' games on one disc: Clock Chess, Bridge Player, Backgammon and Draughts. Excellent value for money.

### Clock Chess 89

£19.95 • CP Software (0993 823463) • All PCs

One of the better PCW chess programs. You can alter the level of play by specifying a time limit. Capable of very strong play and the 3D graphics are excellent.

GRAPHICS	4/5	STRENGTH OF PLAY	5/5
RANGE OF FEATURES	5/5	VALUE VERDICT	5/5

### Colossus Chess 4.0

£15.95 • CDS Software (0302 21134) • All PCs

A very strong chess game which manages to use time which you spend thinking to plan its strategy. Bags of features, including blindfold games.

GRAPHICS	3/5	STRENGTH OF PLAY	3/5
LASTING APPEAL	4/5	VALUE VERDICT	3/5

### Corruption

£24.95 • Rainbird (01 240 8838) • All PCs

Takes you into the heady world of stocks and shares where making money is what it's all about. There's something rotten in the state of Scott Electronics and it's up to you to find out what.

ATMOSPHERE	4/5	INTERACTION	5/5
CHALLENGE	4/5	VALUE VERDICT	5/5

### Cyrus II Chess

£15.95 • Amsoft (0277 230222) • All PCs

Chess game with a stunningly detailed 3-D display. The play is quite strong, with several handy features like allowing you to take back a move.

GRAPHICS	5/5	STRENGTH OF PLAY	3/5
LASTING APPEAL	4/5	VALUE VERDICT	4/5

### Double t Patience

£17.95 • Thurston Techniques (0395 277496) • All PCs

Six well-known card games (from Poker Patience to Pairs) to be played either alone or against the computer.

GRAPHICS	2/5	ADDICTIVENESS	5/5
LASTING APPEAL	4/5	VALUE VERDICT	3/5

### Fish

£24.99 • Rainbird (01 240 8838) • All PCs

The underwater world of Hydropolis is under threat from a gang of interdimensional anarchists. They've stolen a focus wheel and dismantled it; your job is to get it back. Excellent graphics.

ATMOSPHERE	5/5	INTERACTION	4/5
CHALLENGE	4/5	VALUE VERDICT	5/5

### Gnome Ranger

£14.95 • Level 9 (0344 467597) • All PCs

You follow the adventures of Ingrid Bottomlow, the intrepid gnome, through a fairy tale landscape full of competing puzzles. Humorous and rather quaint.

ATMOSPHERE	3/5	INTERACTION	3/5
CHALLENGE	3/5	VALUE VERDICT	4/5

### Guild of Thieves

£24.95 • Rainbird (01-240 8838) • 8000s only

To join the select Guild of Thieves in Keromira, you first have to show your worth by fleeing an island of all its treasures. An excellent adventure!

ATMOSPHERE	5/5	INTERACTION	4/5
CHALLENGE	4/5	VALUE VERDICT	5/5

### Head Coach

£15.95 • Coda (01-789 9551) • All PCs

You coach an American Football team, picking players and deciding tactics against real NFL teams and players. Incredibly detailed simulation – a must for NFL fans!

ATMOSPHERE	4/5	INTERACTION	5/5
CHALLENGE	4/5	VALUE VERDICT	4/5

### Head Over Heels

£14.95 • Ocean (061 832 6633) • 8000s only

A superlative, compulsive 3D arcade adventure where you control either Head or Heels. Escape from Castle Blacktooth and free the Empire's enslaved planets.

GRAPHICS	5/5	ADDICTIVENESS	5/5
LASTING APPEAL	5/5	VALUE VERDICT	5/5

### Ingrid's Back

£19.95 • Level 9 (0344 487597) • All PCs

Sequel to Gnome Ranger in which Ingrid returns to Little Moaning to find it under threat from Jasper Quickback who wants to replace it with a yuppie estate. Adventure in 3 parts.

ATMOSPHERE	4/5	INTERACTION	4/5
CHALLENGE	5/5	VALUE VERDICT	4/5

### Jinxster

£24.95 • Rainbird (01 240 8838) • All PCs

This one's all about saving the civilisation of a place called Aquitania from the wicked Green Witches. All you have to do is find and reassemble a magic bracelet and redirect its errant powers. A very atmospheric game.

ATMOSPHERE	5/5	INTERACTION	4/5
CHALLENGE	5/5	VALUE VERDICT	4/5

### Knightorc

£19.95 • Level 9 (01 631 5373) • All PCs

You are an orc in this typical Level 9 adventure by the name of Knightorc. An addictive game with lots of action, plenty to explore and mind-bending puzzles.

ATMOSPHERE	5/5	INTERACTION	5/5
CHALLENGE	5/5	VALUE VERDICT	5/5

### Lancelot

£14.95 • Mandarin/Level 9 (0625 878888) All PCs

A game in three parts which recounts the adventures of Lancelot. Manufacturers have vividly created an Arthurian world in which points are awarded for displays of chivalry, valour or benevolence. The game permits a full range of powerful commands.

ATMOSPHERE	5/5	INTERACTION	5/5
CHALLENGE	4/5	VALUE VERDICT	5/5

### Lurking Horror

£24.95 • Activision (01-431 1101/2992) • All PCs

Something nasty is lurking down in the bowels of the George Edwards Institute of Technology – find it before it finds you! Another great game from Infocom.

ATMOSPHERE	4/5	INTERACTION	4/5
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CHALLENGE 3/5 VALUE VERDICT 4/5

## Matchday II

£14.95 • Ocean (061 832 6633) • All PCs

Excellent football simulation game with superb graphics. Tackling and jumping, volleying and heading etc. Play against the computer or against a friend.

GRAPHICS 5/5 ADDICTIVENESS 5/5

LASTING APPEAL 5/5 VALUE VERDICT 5/5

## Mindfighter

£24.99 • Abstract Concepts/Activision (01 431 1101) • 8000s only

An adventure game set in post-holocaust Southampton. Here is a psychic 11 year old boy who can change himself into all different kinds of animals, and who has accidentally projected himself into the future. It's up to him to change the course of events and prevent nuclear war.

ATMOSPHERE 5/5 INTERACTION 3/5

CHALLENGE 5/5 VALUE VERDICT 4/5

## The Pawn

£24.95 • Rainbird (01-240 8838) • All PCs

An excellent adventure with dozens of superb screen illustrations, zany characters and a host of baffling puzzles. Will keep you entranced for hours.

ATMOSPHERE 5/5 INTERACTION 5/5

CHALLENGE 5/5 VALUE VERDICT 5/5

## Return to Doom

£12.95 • Topologika (0733 244682) • All PCs

Sequel to Countdown to Doom; you're back on the planet Doomsworld again to track down the ambassador Regina who has been kidnapped by some very unpleasant robots. Another text-only adventure game.

ATMOSPHERE 3/5 INTERACTION 2/5

CHALLENGE 4/5 VALUE VERDICT 4/5

## Silicon Dreams

£19.95 • Rainbird (01-240 8838) • All PCs

A trilogy of intriguing adventure games. You are secret agent Kim Kimberley saving Snowball 9 from almost certain doom! With a humorous novella.

ATMOSPHERE 4/5 INTERACTION 4/5

CHALLENGE 4/5 VALUE VERDICT 4/5

## Scrabble

£19.95 • Virgin Leisure (01-727 8070) • All PCs

Excellent implementation of the famous game. 1 to 4 people can play the computer, which knows a fair few obscure words. Good graphical display. Eight levels of difficulty, and the top level scores 350 or so regularly, so you have to be on top form!

GRAPHICS 4/5 ADDICTIVENESS 3/5

LASTING APPEAL 4/5 VALUE VERDICT 4/5

## Sorcerer

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ATMOSPHERE 5/5 INTERACTION 4/5

CHALLENGE 4/5 VALUE VERDICT 4/5

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GRAPHICS 5/5 ADDICTIVENESS 4/5

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LASTING APPEAL 3/5 VALUE VERDICT 3/5

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GRAPHICS 4/5 ADDICTIVENESS 3/5

LASTING APPEAL 3/5 VALUE VERDICT 3/5

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ATMOSPHERE 5/5 INTERACTION 4/5

CHALLENGE 5/5 VALUE VERDICT 5/5

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GRAPHICS 3/5 ADDICTIVENESS 5/5

LASTING APPEAL 4/5 VALUE VERDICT 5/5

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LASTING APPEAL 4/5 VALUE VERDICT 4/5

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ATMOSPHERE 4/5 INTERACTION 3/5

CHALLENGE 4/5 VALUE VERDICT 4/5

# N E X T M O N T H

The guide continues with the categories of SPREADSHEETS, GRAPHICS and GAMES. The month after that will cover WORD PROCESSORS, ACCOUNTS/PAYROLL, UTILITY and DTP software, and the month after that it's back to this month's topics.

Our intention is to keep publishing the three parts of the guide in rotation, updating it each month to include all new products. If you would like to see other sections of the guide, back issues of 8000 Plus are available at £1.75 each.

Meanwhile, if you are aware of any significant omissions or errors in the File as published, please let us know. We intend to maintain it as THE authoritative guide to PCW software.

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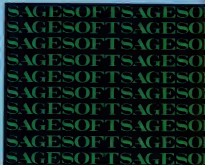
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# POSTSCRIPT

A little literary levitation  
as we lift the level of  
loquaciousness

The great thing about 8000 Plus owners is that they never hesitate to say those things they feel need saying. No surprises there perhaps, but it guarantees a good letters column. So don't forget, we know you've got the writing machine, we're sure you have words we want to hear, so get those letters off to Postscript, 4 Queen's Road, Bath BA1 1EJ

## Where are they now

I am interested in obtaining genealogy software for my 8256 but am struggling to find suppliers. I noticed that 8000 Plus carried a feature of this in issue 13, but have been told that the latter is now out of stock. Can you help?

Fiona Ogg  
Edzell  
Angus

**8000 PLUS** Can we help? Do rabbits have big ears? Seriously, we can't always know the answers but it's such a treat when we do that I get quite overexcited. The people you want are Kintech, 0840 212 063, who publish Personal Ancestral File, but be warned, it's a powerful package and really needs a second disc drive for ease of use.

## Misty opportunity

Does the term vapourware apply to hardware as well as software? Today is just eight weeks since I posted my order for the 512K expansion card first advertised by Isestine in your April issue.

First enquiry brought the prospect of delivery in 28 days. Today the nice lady on the telephone, who gives me the reassuring news that they are a reputable company, now hopes for delivery in June. It seems a pity

that it was not Silicon City or SCA, or some other company with more respect for their (justified) reputation for service, that put the card on the market.

My private investigators believe that Isestine negotiated with Scotch Mist (Postscript May) to manufacture their mind-boggling software, but the canny inventors of TWISTER and CON files, true to Scots philosophy, preferred to test the market for free through your columns first. Meantime Isestine are planning to launch their revolutionary new comms package (of French origin) QUASIMODEM with a split screen facility and Sky Channel compatibility to enable you to watch Dynasty while downloading Citynurse share prices. The trade in as you might expect is delivery in September (1988).

Henning Brondum-Nielsen  
Rannoch Station  
Perthshire

**8000 PLUS** If it's any consolation, the PCW market isn't the only one where advertising precedes product. Companies do test the market with advertising prior to going into full production (which makes commercial sense) but if demand proves strong they can be left with a lot of dissatisfied potential customers and an unfortunate reputation for failing to deliver the goods. I'm not sure which is worse, watching products fail or watching them succeed too well.

## Part work

We have four PCW9512s. The first two were purchased over a year ago and the last two just recently. There is no indication of a different version of LocoScript between the two lots. However, on making back-up copies, I noticed that the LocoScripts from last year copied in SIX parts, whereas the new LocoScripts copy in eight parts. Is there a difference? Are there any other differences?

M J StClair  
Bristol

**8000 PLUS** The PCWs copy a disc using the M drive. The discs themselves are the same size and the number of disc swaps required depends entirely on how much of the M drive is in use. For a wasted quarter of an hour try leaving just 20k free on the M drive and then copying a disc.

## Two into one

Is it possible to add a hard disc to a PCW8512? An article on this subject would be most helpful in this respect.

Do you have any information on the DBQ "tretext" database offered by Advantage? Is it equivalent to Chibase or FT=DB?

C A Humphreys  
Loughborough  
Leics

**8000 PLUS** We hope to be publishing an article on hard discs for the PCW in the very near future. Timatic have been selling one for years and now another company called Ideal Hardware are planning to offer one.

DBQ is a nice little cardboard type database written in E-Basic, a semi-compiler, which is distributed with the E-Basic run time module. It isn't a replacement for a freeform text database.

## Script of his PCW

As a long time reader of 8000 Plus I've read a lot about the "pluses" of owning one of Mr Sugar's little babies, but little about the "minuses" - though I'm not suggesting you change your title.

In the office we use four 9512s. Mine blew a power circuit board while under guarantee. On February 22 it was delivered via the Amstrad-registered dealer to their Amstrad-approved maintenance people.

It's now 11 weeks and not a sign of my machine being returned. What it has cost in terms of lost productivity I hate to think.

I hope this is a cautionary tale for any business thinking of buying

an Amstrad - unless, that is, they never think it's ever going to go wrong.

Mike Maber  
Southampton

**8000 PLUS** Mike Maber invited the whole sorry tale of his troubles and his attempts to solve them, and his isn't the only letter we've had on the subject - repair delays are beginning to get well beyond a joke. See News Plus for the results of our own enquiries.

## New readers, please!

A few weeks ago, I took delivery of a new PCW8256. This was to be my first experience in the world of computers. A few days later I went to the local newsagents and bought your magazine. Whilst I find it an enjoyable read, I must say that a fair percentage of it goes above my head as I am new to computers.

This brings me to the excellent letter in the last issue by Bernard Thompson of Wiltshire. His poem describes my situation perfectly. So may I suggest that 8000 Plus in future implements a 'Straight' novice section? A section without sarcasm for all newcomers to the PCW world! I hope you and all 8000 Plus readers will realize the demand for this!

Gavin Boyle  
Leighton Buzzard  
Bedfordshire

**8000 PLUS** Trying to balance the needs of long-time readers and those new to the PCW is a problem, but one we address gladly. Hopefully, as your computing experience and the 8000 Plus collection grow apace you'll find yourself referring back to the bits you didn't understand and be glad they're there.

## About time

In view of my earlier unkind remarks about firms which advertise a new product and then can't meet demand, it is only fair that I make a kind remark about one which not only meets demand, but almost stuffs the product down the telephone line.

I read your 'Time for a Change' in the May issue yesterday, phoned SICA to check on delivery, placed my order and received my Real Time Clock module this morning. It was installed and working less than 24 hours after I phoned. What a service! (By the way, is the redundant Dart of no value at all?)

Henning Brondum-Nielsen  
Rannoch Station  
Perthshire

**8000 PLUS** SCA are a company I've always found extremely helpful and professional; in fact I bought one of their interfaces with clock myself (yes, we usually do have to pay). I'm afraid I can't think of anything useful to do with redundant data.

## Hacking special

The recent exposure that you have given to UKM7 prompts me to make some comments.

I first acquired a copy of the Lee & Bhot version downloaded by a friend from the Banat Bulletin Board. After I signed up with MicroLink I soon discovered that the issued Mini Office Professional and I were not made for each other, and went back to UKM7. (Among other things I hate having the memory drive wiped clean against my will.) I then got the Advantage Comms disc and compared their UKM7 with the Banat version, using Z8E. It was identical except that Banat had an 'Enable Interrupt' where Advantage had a 'Disable Interrupt'. It did not take long to find out why. The Advantage version crashed on me which the Banat had never done. Z8E proved that it was at this point that the crash occurred.

I have now disassembled the Lee & Bhot UKM7, and besides sorting out the interrupt disasters, I have introduced the following additional features:-

- 1 ASCII files can be sent with the line-feeds removed, so that they look like 'keyboard' input to the distant computer.
- 2 File transmission can be interrupted by the inclusion of a 'pause' character in the file, which is not transmitted (I use backslash, but it's user-selectable including 'none'). This enables, for example, the line that will become the message 'Subject' to be written into the file, followed by a pause at the beginning of the next line while one waits for the distant computer to say 'Text'. Pressing any key allows transmission of the file to continue.
- 3 The original program tended to allow the end-of-file marker to be ignored, thus transmitting any garbage lying around at the end of the file. In my version this has now been changed to ensure that transmission of the file ends at the EOF marker.

If any of this is of interest to anyone I would be happy to put the revised program back into the public domain.

Stephen Younger  
Fife

**8000 PLUS** I have to agree with you that UKM7 is a fine public domain

comms program and works well with the PCW (the CPM user group also have a PCW specific version in their UK library). The only thing that lets it down is that the Modem7 error checking protocol isn't quite Xmodem compatible. Please do put it back into the public domain via the CPM user group or any other PD library



## Foreign service

I have a good laugh every time I read letters from a reader enquiring about whether their PCW will work in continental Europe. Voltage here is supposed to be 220v but we regularly get a blip in the supply, which means that it can disappear for a fraction of a second before surging to 250v. I use my PCW with an AC voltage stabiliser and a surge protector, and amazingly I've not lost a single edit in several months of nightly use. I am full of regard for the robustness of the PCW; at the moment it's 34 degrees centigrade and relative humidity can be up to 85%, but the main hazard is the fine sand carried on the desert winds, requiring the windows to be shut before I remove the dust covers.

Dr Ian Goulding  
Alexandria  
Egypt

**8000 PLUS** Sand, and dust generally, is bad for the PCW, specifically, it's one of the few things that can damage the discs. There's nothing like gouging neat rings in the surface of discs to promote data loss so remember, if you're taking your PCW to desert climes (or cowsheds) keep the discs as well as your PCW clear of dust.

## Apologies accepted

What can I say, except "I am sorry." Last week I rang you, believing that the gift horse had turned into a Trojan horse. I thought the 8000 Plus Software Collection was full of nasty bugs which had ruined the disc drive of my friendly old PCW8256.

After loading LocoScript 2, I could not move the cursor nor could I get into any document. I couldn't even reset the machine by pressing Shift/Extra/Exit. I had to switch off at the mains. So I loaded LocoScript 1. The machine beeped angrily at me for several seconds. The disc manager screen came up, but I could not get into any document, nor move the cursor keys.

Unfortunately all this happened the day after I had tried out the 8000 Plus Collection.

I felt reassured after talking to you on the phone. The computer was working again on and off in the afternoon. The next morning I discovered that the keyboard was the culprit. When I unplugged it and reconnected it, everything was working beautifully.

I had heard terrible stories about discs infected with a virus. One sixth former had lost all his 'A' level work. Somebody else had their disc drive ruined by a disc. These things never happen in one's own school or office, but when you keep hearing of them you start to believe them. Then fear of the unknown sets in.

Well, a keyboard which needs unplugging every now and again to get back to normal is not an ideal working partner, but I can cope with it now.

Mrs Liese Harvey  
Rickmansworth

**8000 PLUS** Viruses are much in the news but not much in evidence. It's often easier to blame something you can't do anything about when things go wrong, but it's surprising how often a series of simple checks can solve seemingly intractable problems. With any fault the first thing to do is turn the PCW off and try pulling the connectors on and off a few times; you may be surprised at how often this fixes the problem.

## Last laugh

I fear Cyrus has had the last laugh. Fiddling about with his program has caused him not only to turn in his grave, on the banks of the river Jaxartes for those with an historical bent, but has also turned the board round, as no doubt many of your chess playing

buffs will have been pointing out.

J B Peacock  
Somerset

**8000 PLUS** Always nice to hear from a contributor (Mr Peacock is in Tipots as well) and indeed, many others commented on this. However, just for a change 8000 Plus is right and all those who write in are wrong. Screen dumps are always printed in reverse, light areas (like characters) in black and dark areas as white in order to save ribbon ink.

## Better late than never

I am 68 years old and have just started in the computer world. I must say that I find it a bit hard going but I am getting there. The reason for my writing is that I require a bit of information, please.

First, do you think that the Amstrad Training Real-Time at £29.95 would be a good thing for me to buy? I am writing a book and of course the PCW is the right thing for the job. Is there a special software for this type of thing, or will the software that came with my Amstrad PCW 8256 be all right?

Secondly, the printer supplied with this machine is slow, as I have read in your magazine. Which printer would you think a better buy, the NEC P6?

R Harbert  
Lockerbie  
Dumfriesshire

**8000 PLUS** I have to speak personally here, since you're merely asking for an opinion. I think you would benefit more from a book than a video; doing always teaches faster than watching.

Presumably you want the kind of speed that only a 24 pin printer will provide. That being so the NEC P6 is an extremely good buy.

## Clubs, the sequel

No sooner had I posted my recent letter to you than I heard from Amstrad. I was astonished to learn that the 'Official Club' (Amsoft Ltd) is a totally independent company. Miss Banks of the Customer Services Dept regrets that they are unable to intervene.

What she does not explain is why the Club is called the Official Club, nor why it uses a logo which is virtually identical with the Amstrad one. It all begins to smell pretty badly.

I therefore spoke to the Consumer Advisory Officer of the Oxfordshire County Council. She agrees with me that there appears to be a prima facie case for considering that consumers are being deceived, and she proposed to take the

# POSTSCRIPT

matter further.

I started from absolute zero in August 1988, so needed help (especially as I am nearly 78).

**Dr M A T Rogers  
Oxford**

**8000 PLUS** We made it quite clear that the Official Amstrad Users Club is the trading name of Lasahold Ltd. and that it is one of the clubs that run on a commercial basis. From what you say it doesn't seem to be running very well, having said which clearly you are under no obligation to buy from them if you don't like the service.

Amstrad make extra money by selling the right to use their name (as do many other companies of course) but they do themselves no good if their name becomes associated with poor service. To answer the final point in your original letter, we have no association with Amstrad, in fact they rarely agree to talk to us.

For those who naturally haven't read the earlier letter it details Mr Rogers fairly unsatisfactory dealings with the Official User Club, despite phoning them for a comment no one has come back to me with any explanation. We shall, of course, try to apprise readers of any further developments.

## Music box

I have come up with a problem that all others, shops, computer publications etc, have failed to help me sort out (for good or bad).

I play a keyboard in our church and I am curious to know if there is any "MIDI" function on the 9512? Our problem is one of numbers within the group and at that end I was hoping to be able to enhance the rather "thin" sound we have at present.

If there is any music software for the 9512? I am sure you would be very grateful if you could put me on the right track with regards to names and addresses.

I have one other point; when I use the Spellchecker function it fails to accept two parts of my address. Bottle comes out as bootee and Merseleys comes out as mesmerised. And this is every time! Can you offer any suggestions at all?

**Mr T B Cowell  
Bottle  
Merseleys**

**8000 PLUS** On your first point, you'll be pleased to hear that next month (the August issue) we'll cover MIDI in some detail. As for the second point, it's time you started adding words to your user dictionary. This lives on M while you're editing and so has to be copied back onto a floppy disc when you've finished. If you want it to be available next time, details of all this can be found on page 120 of the 9512 manual (on mine at least).



"DARLING - I JUST GET THE FEELING SOMETHING'S MISSING"

## The main man

Following my telephone call of today, I made after reading Lt Lustig-Preen's letter in your May issue, I can confirm the remarkable insensitivity to mains voltage of the PCW 8512. I tested it while running a screen dump with EXTRA+PTR, which probably imposes more load on the power supply than any other operation.

There was no perceptible effect down to 62 volts and it continued to work, with progressively more and more distortion and movement on the screen, down to 52 volts. I then turned it up to 110 and wrote this letter. My first test on the PCW in my lab. This is on my other in my office. Perhaps I should connect them in series to save electricity! You should note that prolonged operation at low voltage will shorten the CRT life.

**N P E Wheeler  
Electronic Engineering  
Consultant  
Sutton**

**8000 PLUS** As a one time electronics hobbyist I find this kind of thing fascinating, and so couldn't resist publishing the result of what must surely be the definitive experiment.

## Clicketty click

I must say that your subscription service is wonderful - I expected the issues to be late or not arrive at all, but (as promised) I've received them before they hit the streets, every month without fail.

Could you tell me if anyone out there does Fortran 77? I can only

find the 66 version, which I don't really want.

**Stephen Prosser  
Swansea  
South Wales**

**8000 PLUS** You probably already know that Prospero Software (01 741 8531) do Pro Prospero Fortran for CP/M machines: this is the Ansi X3.9 1965 version, or Fortran 66 as it's normally known. I can't find anyone who does a CP/M 1977 revision.

## Unhappy customer

You printed a Tipoff by me on the Z88 utility Impex80 in the June issue and I feel that I have been shabbily treated. Printing items five months after submission without payment or postal acknowledgement is not going to encourage submissions.

The line in PIP as you printed it was incorrect, it should have read M.z.com-a:impex80.com, as in my original submission.

Another grievance is that you confused the issue of how to get the profile.sub file onto the Amstrad disc, the only realistic alternatives are to use a text editor such as RPED or write it on the Z88 and transmit it to the PCW.

I am annoyed at having my name put against a letter that, as printed, will be of no use to anyone.

**John Hudson  
Gateshead**

**8000 PLUS** The main purpose of Tipoffs is to give those who know a lot a chance to share their knowledge with those who don't. So often hard won knowledge has to be won all over again by the next person to tackle a project, or a piece of software.

We try to make the tips as interesting and as accessible as possible and to include something relevant to as many PCW users as possible. With tips on so many different subjects we don't always get it right, but we try to.

We pay for two or three tips each month, a total of thirty pounds, and this goes to those which have the widest application and/or are best presented.

In order to get a good mix of tips we have to keep a stock of them, and this can lead to long delays in publication (but even a commissioned article in any magazine will generally take three months to appear). When you send in tips they aren't forgotten or ignored but filed, but with so many coming in we can't acknowledge each one.

For the best chance of getting a tip published, make sure all the steps involved are detailed in your letter. To further improve your chances include diagrams, screenshots or printouts needed to illustrate the tip (so that we can check it easily).

The Z88 tip was interesting but only to those who own both computers. As for

the alternative method of writing a file using PIP, this is both practical and straightforward.

## One versus two

Tim Smith's article in issue 23 did an excellent job of extolling the merits of LocoScript 2 over LocoScript 1. When upgrading from the software supplied with the machine surely it is more sensible to take a rather wider view? Protect in particular is the constant subject of letters and tips.

I actually bought my PCW to run accounts software on and regarded the supplied software as a bonus. Seeing a recent special offer for Pocket Protect I took the plunge and purchased a copy to see if the hype was justified.

Extracting an individual statement from a 64k file of customer data (which even with LocoScript 2 is a cup of coffee job) was so fast that I barely had time to blink. I suspect that adding Protect to the Speed Thrills chart would have left LocoScript 2 standing. I suspect that most of your readers would be better served by Protect.

**T Brightmore  
Glos.**

**8000 PLUS** An enormous percentage of PCW owners aren't really aware of the advantages to be gained by upgrading the software their machine comes with, one of the disadvantages of buying a complete system (with other computers you have to think which software will suit you best).

However, most of these PCW owners already know and like LocoScript. With LocoScript 2 they can have both familiarity and improved performance, though that is by no means certain with all upgraded software. Software can become so feature heavy as to be quite difficult to use.

Protect is a different kind of word processor, aimed at making input as fast and as simple as possible rather than improving output (oh all right, yes it is the fastest PCW word processor in the galaxy).

## More in sorrow

I really must answer the letter from D B Minterne (issue 33 "No fun any more"). All I can say is that I feel very sorry for him (I assume it's, a 'him'). I am sure that 99% of your readers enjoy your jokey headlines and pictures (for example). I feel that they lighten the content of your magazine and that you have this aspect just right.

**Mrs P Rouse  
Reading**

**8000 PLUS** So do we, otherwise we wouldn't keep doing it.



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# COMPETITION

Once again the wild and weird 8000 Plus competition swings into action.

This month, Thurston Techniques have put up their range of writers' aids as prizes and we have not one, not two, not even three, but four Tempdiscs to give away as joint first prizes.

Tempdiscs are crammed with every imaginable form and template for use in LocoScript documents.

Tempdiscs 1 and 2 are 180k discs intended for use with the 8256

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and 9 Tempdiscs

are 720k

discs

which

include not

just every

kind of

template but

also

incorporate

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programs as

well. No

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go; no more

trying to get your

template laid out

on screen the way

you've planned it on the paper, no more wasted trees.



## Winning technique

So how do you go about winning these goodies? Well it couldn't be easier. All you have to do is identify the subject of this rather unusual picture. If you think you know what it is, send the answer on a postcard or the outside of a sealed letter to 8000 Plus, 4 Queen St, Bath BA1 1EJ. Final entries to be in by 22nd July. The winners will be announced in the October issue along with the silliest answers. ■



## This month – next month

At long last we've managed to take a look at accounting packages, business software being a subject we'd been forced to neglect through a lack of qualified reviewers. In the coming months, we hope to address not just the needs of writers but all those business-based PCW users out there too.

Our visit to SM Engineering, meanwhile (page 45), provides a fascinating insight into the kind of things people with the right expertise can get up to.

The first in our much requested SuperCalc teach-ins finally hits the pages. Spreadsheets are the ultimate calculators, allowing you to build what are very powerful programs without having to learn a programming language. We're bracing ourselves for a surfeit of tipoffs concerning spreadsheets as a result; if you know a goody then let us have it.

DTP bows out for a while with the last of Dave Axford's explorations of Stop Press. But don't worry, it will still get the occasional look-in, we're suckers for a pretty picture.

One that we've really been looking forward to is Geoffrey Child's series on programming. Not just a how-to-use-Basic tutorial, but a few lessons in the fundamentals of the programmers' art from the man who brought us Lightning Basic and CP Software's AYE.

If you've any comments you'd like to make on the issue, write in and make them to us. We're always interested in hearing from you.

### ● Payroll

A new payroll package from Digita reviewed

### ● CP/M

More in our ongoing familiarisation with the power of CP/M

### ● SuperCalc 2

The sequel in which Tim Nott shows you how to really get to grips with practical applications of this powerful spreadsheet

### ● Programming

A lot more from the maestro

### ● Computer cadences

Your PCW can give you the power to write music direct on the screen - a music processor in fact

### ● Locomail Maths

Hidden away inside LocoMail are some very powerful maths functions. We show you a few of the things they can be made to do

### ● Vertical Software

In the early days of computing all software was purpose-written. A software package written to suit a specific need is still often the best bet

### ● MIDI

Two MIDI music packages for the PCW compared. Is it time you sang a different tune?

### ● Hard discs

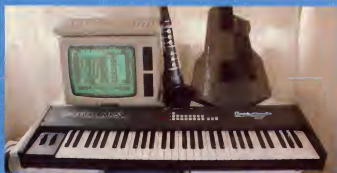
What difference can having a hard disc make to the way you work? Do you want one, do you need one?

### ● Mini Office

Has the much-delayed Mini Office finally found its way to the 8000 Plus office – and was it worth the wait?

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# Still the only high-res graphics spreadsheet for the PCW family

*The Cracker* is a unique spreadsheet for PCW users. As well as providing the features and facilities of a full function financial and scientific spreadsheet, it can create complex graphs on the screen and (dot matrix) printer. The latest 'turbo' version has speeded up screen handling considerably, but still costs only £49.95 inc VAT...

- ❑ A new manual with comprehensive indexing and many examples makes the power of *Cracker* accessible to a wider audience.
- ❑ Suitable for simple adding up as well as complex structural analysis.
- ❑ High resolution graphics that can be used as a stand-alone graphics package or from calculated values:  
Bar charts, stacked bar, hi-lo, pie, line, area, XY, LogX:Y, LogX:LogY  
(With multiple labelling options)
- ❑ A very straightforward upgrade path to 16 bit editions on PCDOS and CDOS.

## Powerful command structures

- ❑ DO-WHILE iterative loops.
- ❑ Day, date and timing functions:  
DATE, DATEAFTER, DAYSAPART  
DELAY, TIMELAPSE etc.
- ❑ Macro facilities ...and much more!

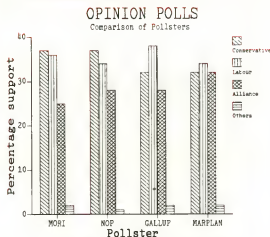
## *Cracker:*

### *Original and still best*

*Cracker* was originally created over 5 years ago by Ian Searle to provide himself with a range of facilities that he couldn't obtain in existing spreadsheet and calc programs.

So *Cracker* has one of the longest pedigrees in the business. The fact that it has maintained a consistent interface when the numerous enhancements and extensions have been added - without undermining the basic elegance and power of the product - is a tribute to the original concept.

*Cracker 2* continues to evolve as a 'live' product under current development by its original author: few if any other full-featured spreadsheets for the PCW can make this claim.



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